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A longitudinal study of the influence of learning environments on educating medical students for patient-centred collaborative practice

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Abstract

Introduction: The growing expectations of patients in an increasingly complex health system have led to a greater focus on quality and safety, and patient-centredness. Collaboration between health professionals and their patients is seen as essential to achieve these outcomes. In response to calls to prepare health practitioners for this collaborative practice, many academic institutions are implementing opportunities for interprofessional learning between students from different health professional backgrounds. Most of these initiatives and their associated literature as well as the measurement tools refer to this student learning as interprofessional learning (IPL) or interprofessional education (IPE). A strategy to build a connectedness between students from different health professions includes sharing the joint enterprise of patient care. An alternative approach is to provide early and extensive clinical experience in the real world of clinical practice, and allow students to engage with multiple communities of practice, learning together with a range of different healthcare professionals and patients. This approach was adopted by the University of Wollongong medical school in Australia, the context of this research. Student encounters with patients during their medical education provided the *mise-en-scène* for authentic learning, preparing students for their future roles as doctors. This study followed a cohort of graduate-entry medical students in their journey through a variety of simulated and real healthcare learning environments in their medical degree, to answer the research question:

How is the learning environment influential on educating medical students for patient-centred collaborative practice?

Method: A longitudinal mixed methods research design was used to conduct this study. An existing survey, the **Readiness for Interprofessional Learning Scale** (RIPLS), was modified, extended and validated to gather quantitative data from one student cohort over their four-year medical degree. Modifications comprised minor edits to survey statements to quantify student attitudes to learning with other health professionals, rather than with health professional students. The modified RIPLS was extended with the addition of patient-centredness items, previously validated with medical graduates. Using the modified extended RIPLS, responses were

collected from 58% of the student cohort (N=47), sequentially at five key time points from entry to the end of the course. Quantitative data were analysed using general linear modelling, which provided estimates of the marginal means for the repeated measures of each of the factors in the survey, at each time point. To explore the results from the quantitative data, the same time points were used to gather qualitative data from a sample of students, on issues related to the survey statements and the medical degree learning environments. Of the 15 students purposefully sampled to reflect a range of initial survey scores, 13 students completed all five semi-structured interviews. Thematic analysis was independently completed by three researchers with joint discussions resulting in agreed themes.

Results: The modified extended RIPLS results demonstrated various statistically significant but modest longitudinal changes in relation to the three factors, namely **teamwork and collaboration, professional identity and patient-centredness**. The overall survey scores were high throughout the four years of the medical degree making it difficult to assign significance in practice to the modest differences noted.

Qualitative data from the interviews revealed students entered medical school with an anticipated socialisation of their role as doctors. Prior life experience and exposure to stereotypes portrayed in the media were influential in student perceptions of the hierarchy of the healthcare team, with doctors having higher status than other health professionals and patients. The hospital was perceived as the 'doctor's domain', but students appeared uncertain where the patient fitted in.

During the first phase of the medical degree (Phase 1), consisting of mostly theoretical learning, students perceived they belonged in a supportive learning community, and noted the obvious rapport between educators from a range of professions. Early in this phase, the students undertook their first intensive placement, a three-week interdisciplinary clinical experience in a range of local healthcare settings. Despite the interdisciplinary nature of these placements, many students saw these settings as the real world of doctors, and not of healthcare teams. They found a mix of challenges associated with their acceptance into the healthcare teams and achieving a sense of belonging. Nevertheless, they described a growing appreciation of other health professionals and the patient in the context of their lives.

By the end of Phase 1, two positive influences on learning were identified by the students: the collaborative learning culture in the school and the significant contribution from members of the local community engaged as simulated patients.

The next phase (Phase 2), with increasing clinical exposure for learning, consisted of a series of short traditional hospital-based clinical specialty rotations. Students perceived that, in this fragmented learning environment, it was more challenging to have a sense of belonging in the healthcare team. While students were excited about learning in the hospital environment, interview responses suggested that their view of the healthcare team was largely restricted to the medical team, with this setting still viewed as the doctor's domain. Students noticed tension between some health professionals. Interestingly, while patients tended to view students as belonging in their healthcare team, students mainly saw patients as objects of their learning.

In the following phase (Phase 3), all students completed a longitudinal integrated clerkship where they **lived, learned and worked** in a regional or rural Australian community. In this twelve-month phase, students were based in a local primary care practice, and learned in a range of community and hospital local settings. The aim of this clinical placement was to provide greater opportunity for active learning with patients, continuity of patient care, longitudinal supervision by local preceptors and close peer support. Students described more opportunity for interprofessional learning, including from and with nurses in their primary care practices, and a growing sense of belonging in local communities of practice, focused on patient care. After this phase of extensive learning with and for patients, students now recognised the role of the patient in their own care.

Discussion: The modified extended RIPLS tool was not able to clearly identify longitudinal changes or key influences on interprofessional learning and patient-centredness. This is likely due to limitations associated with this self-report survey tool and/or the small student numbers. The qualitative data from the student interviews were more enlightening on the influence of the learning environment on educating medical students for patient-centred collaborative practice.

Students entered medical school with preconceived ideas of health professional

roles. The media, tending to portray hospital-based patient care, was influential in students describing the hospital as the doctor's domain. Despite developing learning partnerships with simulated patients in Phase 1, students lost some focus on the patient as 'subject' in their care, during hospital-based specialty rotations. However, longitudinal relationships with clinical preceptors and patients, and active involvement in patient care in Phase 3, restored student focus on the patient. Long-term care relationships with patients, under the supervision of medical preceptors and other health professionals, was identified as a key influence when educating students for patient-centred collaborative practice. Students also perceived that the longitudinal relationships with co-located peers was an important feature of learning in this environment.

The learning environments in the student medical degree, the context of this research, had varying influences on student perceptions of the healthcare team, and the patient's place therein. While students described the learning climate in the academic institution as one that facilitated a sense of belonging, and was inclusive of a range of academics and patients, the healthcare learning environment proved to be a critical influence on student perceptions of the patient's place in collaborative practice. The healthcare system can make it challenging to educate students for patient-centred collaborative practice and this should be considered when planning clinical education experiences. When educating for patient-centred collaborative practice, educators must be cognisant of the pre-formed attitudes, opinions and values with which students enter their training. Furthermore, the features and climate of the learning environments provided, and the place of the patients within these environments, are likely influential. Students are more likely to develop into patient-centred practitioners when they learn with and for patients.

Acknowledgements

However great a man's natural talent may be, the act of writing cannot be learned all at once.
Jean-Jacques Rousseau

In the depth of winter, I finally learned that within me there lay an invincible summer.
Albert Camus

My research would have been impossible without the advice and support of my supervisors, Associate Professor Kathryn Weston, Professor Judith (Nicky) Hudson and Professor Peter Caputi.

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Publications and conference presentations arising from this research topic

Publications

Hudson, JN, Lethbridge, A, **Vella, SI** and Caputi, P 2016, 'Decline in medical students' attitudes to interprofessional learning and patient-centredness', *Medical Education,* vol. 50, no. 6, pp. 550–559.

Hudson, JN, Lethbridge, A, **Vella, SI** and Caputi, P 2016, 'Interprofessional learning: for and with patients', *Medical Education,* vol. 50, no. 10, p. 1075.

Conferences presentations

Vella SI, Weston KM, Hudson JN 'The influence of an authentic learning environment on educating for patient-centred collaborative practice.' Accepted for presentation to Australian and New Zealand Association for Health Professional Educators 2019 Conference.

Vella SI, Weston KM, Hudson JN, Caputi P 'The Development of Students' attitudes to Interprofessional Learning and Practice on Entry to their Medical Degree.' Presented at ANZAHPE-AMEA Conference, Newcastle, March, 2015.

Vella SI 'Social perspective, educational or behavioural: what theory underpins the development of students' attitudes during training?' Paper presented at Australian and New Zealand Association of Medical Educators (ANZAME) Conference, Townsville, July 2010.

Vella SI 'Clinical skills team modelling interprofessional collaboration.' Paper presented at 13th Ottawa International Conference on Clinical Competency, Melbourne, March, 2008.

Vella SI, Hudson JN 'Educators learning together and modelling interprofessional collaboration.' Paper presented at ANZAME Conference, Canberra, September, 2007.

Certification

I, Susan Irene Vella, declare that this thesis submitted in fulfilment of the requirements for the conferral of the degree doctorate of philosophy, from the University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. This document has not been submitted for qualifications at any other academic institution.

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Susan Irene Vella
Date 11/03/2019

Abbreviations

ANOVA	Analysis of Variance
GLM	General Linear Modelling
GP	General Practitioner
IBM	International Business Machines
IPE	Interprofessional Education
IPL	Interprofessional Learning
LIC	Longitudinal Integrated Clerkship
L-TIPP	Learning and Teaching for Interprofessional Practice (in Australia)
RIPLS	Readiness for Interprofessional Learning Scale
SPSS	Statistical Package for the Social Sciences
WHO	World Health Organisation

Glossary

Collaborative practice	*Describes the intentional practice by people* (Croker et al. 2016b, p.51) and reflects the importance of all individuals to share knowledge, thoughts, ideas and perspective including the patient and those of importance to the patient (partners, carers, family).
Educating for collaborative practice	Encompasses the terms interprofessional learning and interprofessional education. This phrase places the emphasis on healthcare outcomes, avoids the need for restrictive definitions, and is more inclusive.
General Practitioner	A community doctor who treats patients with minor or chronic illnesses. Other names are Family Physician or Family Medicine practitioner.
Interprofessional collaboration	*A partnership that starts with the patient and includes all involved healthcare providers working together to deliver patient- and family-centered care* (McEwen 2017, p. 36).
Interprofessional education	*Occasions when two or more professionals learn with, from and about each other to improve collaboration and the quality of care.* (Barr, p.14 2005)
Interprofessional learning	An educational process through which participants are provided with structured learning opportunities for shared learning. (Barr, 2002)
Patient-centred healthcare	*Identifies healthcare that is designed, organised, and practised with the patient at the centre. According to IAPO's Declaration, patient-centred healthcare builds on five core principles: Respect, choice and empowerment, involvement in health policy, access and support and information.* (International Alliance of Patient Organisations 2017, p1.)
Phase 1	University campus-based education for eighteen months and including fortnightly half-day placements in general practice and local hospital. This includes a three-week interdisciplinary clinical placement at the end of the first semester.

<table>
<tr><td>Phase 2</td><td>A traditional hospital-based placement for twelve months, with students spending four days per week for five weeks in each of the seven rotations and one day per week at the university.</td></tr>
<tr><td>Phase 3</td><td>Involves a longitudinal integrated placement in which all students undertake a continuous twelve-month community-based placement in a regional area in NSW. Experiences include concurrent time in the local hospital and primary healthcare practice.</td></tr>
<tr><td>Phase 4</td><td>Involves pre-internship, selective and elective rotations in any national or international location undertaking general or specialist placement. The third rotation is a preparation for internship, based within an Australian hospital.</td></tr>
<tr><td>Remoteness structure</td><td>Remoteness Areas divide Australia into five classes of remoteness on the basis of a measure of relative access to services. As below:
<table><tr><th>Remoteness Area Classification</th><th>Definition</th></tr><tr><td>RA 1</td><td>Major Cities of Australia [population >50,000]</td></tr><tr><td>RA 2</td><td>Inner Regional Australia [population > 15,000-50,000]</td></tr><tr><td>RA 3</td><td>Outer Regional Australia [Population 5,000-15,000]</td></tr><tr><td>RA 4</td><td>Remote</td></tr><tr><td>RA 4</td><td>Very Remote</td></tr></table>MODIFIED FROM AUSTRALIAN STATISTICAL GEOGRAPHY STANDARD, 2016 AND MODIFIED MONASH CATEGORIES, RURAL CLASSIFICATION TECHNICAL WORKING GROUP, 2014.</td></tr>
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Chapter 1: Introduction

Overview of chapter

This chapter will discuss the development of educating for collaborative practice and patient-centred healthcare, from historic events through to current reforms. A literature review of research pertaining to the topic, including some of the main theories supporting these concepts, is included. An overview of the research, including the purpose, research questions and context within healthcare, follows. Completing this chapter is an outline of the thesis structure.

It is important to acknowledge that the term *educating for collaborative practice* is an umbrella term coined by Hudson and Croker (p.114, 2018) to cover the phenomena of interprofessional learning (IPL) and interprofessional education (IPE), two terms used in much of the published literature. Rather than using the conventional terminology of IPL/IPE (unless it is used by authors in the relevant literature) this thesis will use **educating for collaborative practice** as it places emphasis on the outcome and focuses on collaboration. Collaboration describes the intentional practice by people to work together (Croker et al. 2016b, p.51) and reflects the importance of all involved in the care of the patient to share knowledge, thoughts, ideas and perspectives including the patient, and those persons of importance to the patient, such as partners, carers, and family members.

Collaborative practice in healthcare

The concept of **professional collaboration** in teams is not new. Historically, doctors, nurses and others have regularly worked together to improve the health of their communities. Early incentives to improve health services included teams of doctors, nurses and auxiliaries sent out by the British Government to remote areas of India during the 1800s to improve the health of isolated people (Baldwin 1996). Later, after World War II, multiprofessional medical and surgical teams were established in the United States of America (USA) to provide specialist healthcare. One such initiative was to advance healthcare for disabled children. This involved establishing rehabilitation services, long-term care and specialised surgical procedures (DeWitt 2007) to improve health outcomes. While in Britain, the government established the National Health System (Baldwin 2007) and provided the impetus for collaboration between healthcare providers. In the 1960s the concept of primary healthcare emerged, initially developed from United States (US) President Johnson's vision for the Great Society and the War on Poverty. The primary healthcare concept aimed for greater access to good healthcare for the under-served and poor (World Health Organisation Report 1978). This concept was accelerated globally as a result of the 1978 World Health Organisation (WHO) conference on Primary Healthcare in Alma-Ata, Union of Soviet Socialist Republics (USSR) now Almaty in Kazakhstan. During the 1970s the Australian Government set in motion extensive changes in health and education to Australian society. One of the significant health reforms was launching its own concept of primary healthcare with the Community Health Program (Whitlam Institute 2017). Through the Community Health Program, new facilities known as Community Health Centres and the provision of community services, were established in all states. One of the

foundations was to promote collaborative relationships in healthcare. The Whitlam government in Australia also made significant changes in education by providing tertiary students with financial assistance and abolishing tuition fees as well as increasing funding to universities and other tertiary education institutes (Whitlam Institute 2017). However, any reform in health education to support the Community Health Program and promote collaborative practice was not addressed at the time. Nonetheless, reforms in the education of health professionals in relation to collaborative practice were on the global agenda.

National incentives in the US had begun much earlier than in Australia. One of the earliest health education conferences to foster educating for collaborative practice ideas was convened at the University of Michigan nearly fifty years ago. In 1972, the Institute of Medicine convened the Conference on the Interrelationships of Education Programs for Health Professionals which recognised the potential for healthcare to be improved by greater co-operation among health professionals. Moreover, the committee report Education for the Health Team, recommended that the Institute of Medicine should *advance the concept of interdisciplinary education* for health science participants (Pellegrino 1972, p. 21). The 1972 conference explored many of the local difficulties that had been identified in promoting collaborative practice. The committee identified three barriers which needed to be addressed in order to promote collaborative practice:

- Ongoing increase in the variety of healthcare professionals;
- Cost of healthcare;

- Growing realisation that many patients' and communities' healthcare needs require multiple individual practitioners.

The Institute of Medicine also recognised that health professionals were not trained to work in healthcare teams and that traditional perspectives of healthcare roles and misinformation about colleagues in other professions interfered with team dynamics. Historically, each healthcare profession had its own specific language (and jargon), reinforced over time by their professions' cognitive approaches to problem solving (Hall & Weaver 2001). Hence, there was a lack of common language for team communication which continued to choke future co-operative efforts (Institute of Medicine 1972). In this same year, the importance of collaboration among health professionals arrived on the world stage.

The WHO convened the International Conference on Primary Healthcare in Alma-Ata during 1978 which made a number of declarations. These included the imperative for all health workers to be trained socially and technically to work as a healthcare team for the benefit of communities' needs (Declaration VII Alma-Ata 1978); and the right and duty of individuals (patients) to participate in their healthcare (Declaration III Alma-Ata 1978). It took nearly ten years for the WHO to establish a study group on multiprofessional education (WHO 1988). This expert group highlighted the ability of team-based healthcare to provide a more holistic perspective of the patient. Combining inherently different professions allows patient care to be seen from multiple perspectives e.g. medicine from a biological aspect and social work from a social aspect. The potential of coordinated care to provide greater

impact on patient health than the independent contributions of individual practitioners was compelling. The report also outlined the first guidelines on designing and implementing multiprofessional education programs for healthcare participants, recognising the primary healthcare setting as the ideal venue for participant learning about multiprofessional teams.

Subsequently, the WHO published two reports addressing educating for collaborative practice. The first report, the 2006 World Health Report Working Together for Health, revealed an estimated worldwide shortage of almost 4.3 million doctors, midwives, nurses and support workers and led to the establishment of the WHO Study Group on Interprofessional Education and Collaborative Practice. This group focused on assessing the current state of the global environment, research and potential incentives and policies to enable educating for collaborative practice to be utilised internationally. The second report, Framework for Action on Interprofessional Education & Collaborative Practice released in 2010, was a landmark publication. It provided a framework of mechanisms, strategies, and ideas for policy-makers to apply to their local health environments to enable education for collaborative practice. This report included discussion of the importance of patient involvement in quality healthcare. Later that year (2010), the Australian Commission for Safety and Quality in Healthcare (ACSQHC) released the National Safety and Quality Healthcare Standards (2012a). Standard 2 of this report covers Partnering with Consumers and clearly states that partnerships with consumers exist when:

> *Consumers are treated with dignity and respect; information is shared with consumers; and participation and collaboration in healthcare*

> *processes are encouraged and supported to the extent that consumers choose* (ACSQHC: National Safety and Quality Healthcare Standards 2012a, p.110).

These views reflected a much earlier view reported by the Institute of Medicine Conference Steering Committee in 1972, stating:

> *The patient himself [or herself] is a member of the team and … can be expected increasingly to exert his [or her] prerogatives to participate in decisions that affect his [her] well-being* (Institute of Medicine 1972, p.12).

This statement clearly recognises that the patient has expertise about what matters most to them, their beliefs, values, views, and needs. Moreover, the statement advocates patients as part of the healthcare team. Patient-centredness is becoming the primary approach to healthcare, and ideally needs to be introduced during health professionals' education.

Educating health professions students for collaborative practice

Definitions

The lack of definitions or consistency in definitions of terms and phrases used in the interprofessional health literature has been described as a 'semantic quagmire' (Barr, 2002; Reeves 2011). Multiple terms are used synonymously e.g. interdisciplinary, multiprofessional, inter-occupational or multidisciplinary (Barr 2002; Stone 2007; Reeves 2011; Perrier et al. 2016) to which are added words such as team, learning, work, collaboration (Perrier et al. 2016; Barr 2002). This has resulted in numerous permutations and consequent perplexity arising when searching for research

literature, comparing studies and writing (Dimoliatis & Roff, 2007; Zwarenstein et al. 2009; Reeves et al. 2013; Perrier et al. 2016). Historically, multiprofessional or interdisciplinary were terms commonly used in reference to the concept of different health professionals working or learning together. However, in the new millennium, interprofessional has steadily grown in usage as the preferred term for this concept. Interprofessional refers to:

> *... interaction between the professionals involved, from different backgrounds, but who have the same joint goals in working together.* (Leathard 2003, p.5).

Introduced in 1997, and revised in 2002 and 2005, the most commonly quoted definition of *Interprofessional Education* is from the Centre for the Advancement of Interprofessional Education as follows:

> *Occasions when two or more professionals learn with, from and about each other to improve collaboration and the quality of care* (Barr 2005, p.14).

This definition does not differentiate participants learning from qualified health professionals, or with and from learners of other health professions. However, by including the phrase **to learn with, from and about another person**, the definition implies the need for relationship development between the professionals involved.

Horsburgh et al. (2001), in an effort not to lose track of outcomes or become obsessed with definitions, provided a useful combination of learning and education, stating:

> *Interprofessional learning is an educational process through which participants are provided with structured learning opportunities for shared learning* (p.877).

The outcome of interprofessional education in the definition by Centre for the Advancement of Interprofessional Education is missing, since it must be remembered that the outcome of educating for collaborative practice is the improvement of patient healthcare and not just the education *per se*. Exploring the statement of Horsburgh et al. (2001), an educational process refers to any learning experience, not just classroom or clinic-based activities. It may include other interventions such as simulation. Structured learning occurs when the deliberate educational purpose of activities is to expose healthcare participants to other related health professions. Shared learning refers to *learning that occurs in a collaborative environment* (Abramoff 2013 p.18). This statement refers to formal learning only, as it must be remembered that learning also occurs informally. Informal learning refers to learning which occurs spontaneously, often over casual activities such as coffee or lunch but also through witnessing unpleasant, confronting or inappropriate incidents.

The background literature and the survey conducted for the quantitative evaluation use the terms interprofessional learning or interprofessional education as these are the terms employed by most literature and survey authors. The preferred term for this thesis, **educating for collaborative practice**, places the emphasis on healthcare outcomes, avoids the need for restrictive definitions, and is more inclusive. Collaboration describes the intentional practice by people (Croker et al. 2016b p.51) and reflects the importance of **all i**ndividuals to share knowledge, thoughts, ideas

and perspective including the patient and those of importance to the patient (partners, carers, family). While educating for collaborative practice is a preferred umbrella term to encompass IPL and IPE, the latter terms will be used in discussions if they are terms specifically used by the relevant authors.

Exploring the global acceleration of educating for collaborative practice

> *Our challenge… is not whether we can deliver care in teams but rather how well we will deliver care in teams*. (Schyve 2005, p.186).

Educating for collaborative practice has been the subject of prolific research from many countries, including Australia, with increasing focus attributed to the 1988 World Health Organisation report Learning together to work together for health, which encouraged countries to foster education for collaborative practice. Medical errors are a significant cause of death. In the USA, medical error is the third highest cause of death after heart disease and cancer (Sipherd, R, special to CNBC.com. 2018; USA Census Bureau 2018). Furthermore, investigations into medical errors in the United Kingdom (UK) and USA found that a lack of collaboration between health professionals was a significant factor, and one of the resulting recommendations was to focus on educating health professionals for collaborative practice. In the USA, the report To Err is Human: Building a Safer Health System (Kohn 2000) has been particularly influential as the report is viewed as the beginning of modern patient safety, putting patient death due to medical error in the public domain. Educating for collaborative practice to facilitate quality and safety in healthcare is also growing in Australia. The Australian government established the Australian Commission on Safety and Quality in Healthcare in 2006, and a small

group of health professionals steered the development of the Australasian Interprofessional Practice and Education Network which was launched in April 2006 (Nisbet et al. 2007).

While there is limited evidence to date that educating for collaborative practice actually improves patient safety, international consensus has been reached on the need to include education for collaborative practice in health professionals' curricula. Reeves et al. 2013 reported an increasing number of published rigorous studies on the outcomes of IPL and IPE. However, the lack of homogeneity between the studies meant it was not possible to draw to generalise inferences on the benefits or otherwise, of educating for collaborative practice to professional practice or patient outcomes. Unfortunately, the most recent Cochrane review update (Reeves et al. 2017) assessing the published literature on the effectiveness of education for collaborative practice continues to reveal little evidence, with the review authors reporting:

> *We are uncertain whether the strategies improved patient-assessed quality of care, continuity of care, or collaborative working.* (Reeves et al. 2017, p.2).

Healthcare is increasingly complex, particularly with the co-morbidities occurring within an increasingly aging population. Teamwork is increasingly being seen as essential for good quality and safe healthcare (WHO 2010). Educating the next generations of healthcare workers will require a considerable change of curricula, in healthcare education institutions and in workplaces, to develop collaborative practice and meet future population healthcare needs.

Change can be a difficult process for many organisations but is necessary in order to meet the fluctuating demands and needs of society. A useful model from the change management literature is the eight-phase model of Kotter (1996) which commences with creating a sense of urgency. A sense of urgency was fuelled in the UK by public outrage due to government reports attributing the major source of errors to a lack of professional respect and communication (Stone 2007). Further to this, the Australian Commission for Safety and Quality in Healthcare report, the National Patient Safety Education Framework, in 2005 highlighted the importance of communication between health professionals during collaboration to deliver quality and safe care to patients. National adoption of this framework emphasised the importance of educating healthcare workers to be practice-ready for collaborative practice. However, critical to the adoption of educating for collaborative practice are health professionals' attitudes to collaborative practice in the workplace.

Several authors (Curran et al. 2010; Ciccone et al. 2012; Park et al. 2014) have reported that the development of a positive attitude to educating for IPE and IPL was important to fostering healthcare collaborations between professionals. Thus, educators must investigate the factors which may impact positively or negatively on these attitudes, and the influence of factors such as professional placements on attitude development. Current research on developing positive attitudes has concentrated on short interventions followed by an evaluation, investigating attitude change. This has been shown to have little effect in the long-term (Reeves, 2017). Much of the research to date on developing a culture of educating for collaborative practice has investigated the effectiveness of various education programs on

teaching healthcare participants about other professionals' roles and attempting to establish collaborative attitudes and behaviours. Implementing educational programs to foster a positive attitude towards educating for collaborative practice is unlikely to succeed unless educationalists are aware of the factors which currently influence the development of attitudes to this. For example, a unit of study involving a group of health professional participants from several disciplines or a short program of learning collaborative skills may be later undermined by the observed behaviour of senior clinicians in a workplace setting such as a hospital, or outpatient clinic. Reeves et al. (2017, p.2) recommend that:

> *Future studies should focus on longer acclimatisation periods before evaluating newly implemented IPC* [interprofessional collaboration] *interventions, and use longer follow-up to generate a more informed understanding of the effects of IPC on clinical practice.*

To date, three quantitative studies have followed the progress of attitudes to IPL over the years of professional education (3-5 years, dependent on the profession) and all have used the Readiness for Interprofessional Learning Scale (RIPLS), developed by Parsell and Bligh (1999), and validated and revised by McFadyen et al. (2005; 2006), to monitor participant attitudes. Two studies showed that, despite IPL experiences, most of the pre-registration participants included in the study demonstrated a decline in attitudes during education (Hudson et al. 2016; Pollard et al. 2006; Coster 2008). The third study (McFadyen et al. 2010) used a controlled longitudinal design to investigate attitudes towards IPL for participants' education from six different professions. They compared two groups of participants: a control group without any IPL experiences and an education (test) group. This study showed

that only the participants in the education group had any change in attitudes to IPL. While the scores of the control group of participants on attitudes to IPL remained steady over the education year, all participants in the education group showed a decline in their mean scores on the factors areas of the survey, i.e. the test participants actually returned lower scores suggesting less favourable attitudes to IPL. The factors in which this occurred were: **teamwork and collaboration, positive and negative professional identity, and roles and responsibilities**. The authors suggest that this may occur because the IPL experiences provided an early opportunity for participants to explore the differences between professional groups on teamwork, roles and professional responsibilities. They postulated that providing this early opportunity fostered a change in participants' perceptions from an initial idealistic view to a more realistic understanding of the issues involved. Importantly, all participants in the education group showed the development of more positive attitudes to all factors in later years. Interestingly, the improvement occurred at different times for those in different professions despite the IPL experiences occurring in the same years of training for all health professional participants. This left the authors questioning the role of clinical placements in the development of participants' attitudes. The influence of placements in attitude development was reinforced by Pollard et al. (2006). These authors' research suggested that profession-specific placements have the greatest influence on students' attitudes to interprofessional learning. To date, no studies have investigated the impact of placements on students' learning of collaborative practice or the impact of the environment in which they are learning.

A notable gap in the literature is the lack of qualitative data exploring how and why various factors may influence students' attitudes to interprofessional learning and collaborative practice. Some factors which may be important in influencing students within the clinical environment encompass, but are not limited to the patient, the students and the clinical environment. These factors comprise:

- The patient's role and level of involvement (Pitkala et al. 2003; Bleakley & Bligh, 2008);
- Students':
    - Commitment to reflecting on their developing identity (Niemi 1997);
    - Position within the team/hospital hierarchy (Baszanger 1985; Pitkala et al. 2003);
    - Level of participation (Curran et al. 2010);
    - Relationships with their supervisors (Dornan et al. 2005)
- Clinical environment
    - Community of practice (Heri & Pudelko 2003).

All these researchers viewed collaboration as essential for high quality and safe healthcare in the current healthcare landscape.

In response to calls to prepare health practitioners for collaborative practice centred on the patient, many academic institutions are implementing opportunities for educating for collaborative practice among health professional students. An alternative approach is to provide extensive clinical experience in the real world of clinical practice and allow students to engage with multiple communities of practice, learning together with a range of different healthcare professionals.

Sharing the joint enterprise of patient care has the potential to build a connectedness between healthcare practitioners of different professional backgrounds. Student encounters with patients in the health system provide the *mise-en-scène* for authentic learning, preparing students for their future roles as doctors. As discussed later, this is why the thesis research aims to investigate the impact of authentic placements and clinical education on the development of medical participants' attitudes to interprofessional learning educating for collaborative practice; in addition to exploring the contributing role of patient involvement over the course of four years of education in a graduate-entry medical degree.

Educational interventions and skills development for collaborative practice

While educating for collaborative practice encompasses both pre- and post-medical registration, this thesis will discuss pre-registration learning unless otherwise stated. There is consensus on some of the skills required for collaborative practice in health, but the debate continues about how participants should learn these skills. According to the literature, the following skills are most commonly developed in educating for collaborative practice experiences: communication skills including conflict resolution; development of mutual respect (Barr 1998; San Martin-Rodriguez et al. 2005; Canadian Health Services Research Foundation 2006; Dunston et al. 2009; WHO 2010); knowledge and awareness of one's own and others' health professional roles (Dunston et al. 2009; WHO 2010; Haruta et al. 2016); patients as partners in care (Canadian Interprofessional Health Collaborative 2010); patient-centred care

(Walsh et al. 2005; Interprofessional Education Collaborative Expert Panel 2011; Brewer 2013a; Haruta et al. 2016) and the ability to tolerate differences (Barr 1998; Canadian Health Services Research Foundation 2006; Canadian Interprofessional Health Collaborative [CIHC] 2010; WHO 2010). The goal of educating for collaborative practice is to develop and maintain high quality and effective relationships between healthcare practitioners and learners in partnership with patients for optimal healthcare outcomes.

There is a plethora of educating for collaborative practice experiences currently offered in health professional training courses around the world and many have been reported in the literature (Wahlström et al. 1998; Guest et al. 2002; Rodehorst et al. 2005; Pollard 2008a; Wilhelmesson et al. 2009; Bradley et al, 2009; Curren, 2010; McFadyen et al. 2010; Brewer et al. 2013b; Fung et al. 2015; Miles et al, 2016; Fox et al. 2018; Myron et al. 2018; Adams et al. 2018). Central to all these experiences is the bringing together of participants from a variety of health professions to learn together and develop collaborative skills which foster mutual respect, learning from each other and teamwork. Based on the published literature, educating for collaborative practice experiences can be divided into four major categories: academic-based, use of life-like patient manikins (medium to high fidelity simulation), training wards, and interprofessional specific placements. In attempting to achieve the goal of shared learning, attitudes to educating for collaborative practice have been a major barrier to the development and implementation of these activities (Horsburgh et al. 2006). Educators working in the educating for collaborative practice space also need to be supportive and project positive attitudes.

Educators' attitudes from past negative experiences and different professional frameworks (Croker et al. 2016a) also require negotiation for educating for collaborative practice activities to be successful. This demonstrates the critical importance of attitudes in the quest for collaborative practice.

Attitudes

An attitude is a state of mind or feeling with regard to something, closely related to an opinion and belief, best explained as a *predisposition to respond in a favourable or unfavourable manner with respect to a given attitude object* (Oskamp & Schultz 2005, p.9). An attitude object is a person, idea, action or encounter and may be singular or plural (Ajzen & Fishbein 1980; Oskamp & Schultz 2005). In the context of this thesis, the attitude objects may be those health professionals outside a participant's chosen profession. Attitudes, like stereotypes, are cognitive processes that allow people to understand the complex social experiences around them and are used as a short-cut to effectively participate within the social world (Oskamp & Schultz 2005). Therefore, an attitude is the result of self-evaluation of past experiences as well as influences from peers, schools, teachers, parents and the media. Participants may enter the training program of their chosen health profession with pre-formed attitudes based on their past personal and educational experiences. Opinion is a verbalisation of an attitude, but non-verbal expressions can also occur, such as when an individual sticks a political message to his or her rear car window.

One model of attitudes (Oskamp & Schultz 2005) useful in the context of this thesis, divides attitudes into 3 separate entities or dimensions: behavioural intention;

affective or feeling dimension; and cognitive dimension. Oskamp and Schultz (2005) point out that congruence among beliefs, attitudes, and behavioural intentions may not necessarily occur. The cognitive dimension refers to beliefs, however not all beliefs are attitudes. The affective dimension, that is the strength of the feeling of an attitude, may be measured using a rating scale. The feeling component refers to a person's emotions or feelings towards the attitude object (Maio et al. 2003). This forms a basis for the Readiness for Interprofessional Learning rating scales (Ajzen & Fishbein 2005). Readiness is defined as *the state or quality of being ready; preparedness* (Concise Oxford English Dictionary 2006, p.1195). The Readiness for Interprofessional Learning scale uses Likert-type scales to measure hidden beliefs or latent constructs - that is, characteristics of people such as attitudes, feelings or opinions. Latent constructs are generally thought of as unobservable individual characteristics, meaning that there is no concrete, objective measurement that is believed to exist. However, these latent constructs are subject to variations, such as answering questions or responding to statements on a survey (DeVellis 2003).

An individual's organised hierarchy of attitudes constitutes a value system. There may be many cognitive and affect components of varying strength which are linked to any one of an individual's core values. Katz (1960) proposed that individuals hold attitudes for a variety of purposes and that attitudes provide a function to meet the needs of the individual to live and work within the social world. Katz (1960) argued that there are four possible functions of attitudes which may perform this role, namely:

- The need for understanding (knowledge);

- Reward (adjustment) which includes belonging;
- Self-protection (ego-defensive);
- Private-public consistency (value-expressive).

People make adjustments in their thinking and behaviour to maximise rewards that satisfy the individual's needs and minimise penalties such as self-protection in the external environment. One function is reward. Consider for a moment a hypothetical medical student's desire to learn medicine. This hypothetical student may express an opinion that *I can learn from another health professional with more experience*, if she or he considers that this opinion is likely to be rewarded by acceptance into the clinical environment. Alternatively, the hypothetical student may consider *I can only learn from other doctors*. Students may make adjustments or changes in their attitudes to maximise rewards that satisfy their needs to be accepted and gain a sense of belonging within the placement environment in order to learn.

Another important aspect of Katz's function model of attitudes is **value-expressive function**. This concept illustrates that individuals derive satisfaction from expressing attitudes which allow them to discuss a core value. In doing so, this also allows moulding of the individual's self-image. Within this function, Katz (1960) discussed the socialisation that occurs when an individual enters a new group or organisation. The degree to which values are internalised can vary over time and with experiences. This is the socialisation process which occurs in all professional training. Katz (1960) described that the basis for change and therefore internalisation of new values and attitudes may be from the contributions of one or more factors as follows:

- There is a good match between values (which includes attitudes) of the new group – medicine – to the values of the individual - the student;
- Persistent indoctrination – a clear model of what constitutes a good group member should be consistently communicated to the new member/s;
- Participation – the new group provides an opportunity for the individual to use his/her abilities and skills to demonstrate their worth in the group;
- Acceptance which allows the individual to share in the group rewards.

During analysis of participant interviews presented in this thesis, Katz's functional model of attitudes, particularly the factors involved in socialisation, was usefully employed.

International researchers debate the best time to stage educating for collaborative practice activities for health professional learners. Many suggest that this should commence early in professional education curricula before participants develop stereotyped attitudes of other health professional groups. Many pre-post evaluations of IPE activities conducted during the early years of health professionals' curricula have shown some improvements in attitudinal scores (Becker & Godwin 2005; Bradley et al. 2009; Ateah et al. 2011; Myhre 2013; Ruebling et al. 2014) while others have shown mixed results (Goelen et al. 2006; Street et al. 2007; Jacobsen & Lindqvist 2009). Variations in reported results from educating for collaborative practice activities may be due to an array of pre-formed attitudes, ideas, and beliefs present on entry to training.

A number of studies have shown that participants enter professional education courses with relatively negative attitudes, values and beliefs already formed about other health professionals (Pollard et al. 2004; Rudland and Mires 2005; Horsburgh et al. 2006; Coster et al. 2008). Positive and negative stereotypic views of other health professionals have been reported (Horak et al. 1998; Tunstall-Pedoe et al. 2003; Hean et al. 2006; Lewitt et al. 2010). Participants have also formed ideas of their professional identity at the beginning of their professional education (Adams et al. 2006; Stull & Blue 2016). Other researchers have shown that when attitudinal changes do occur after IPE, they are not sustained for more than 3 months (Bradley et al. 2009; Lapkin et al. 2013) or there were inconsistencies in attitude changes occurring between the different health professional participants involved. Using Katz's function model of attitudes, there are two possible reasons for this. First is the suggestion that newly changed attitudes to IPE are not providing a necessary function to meet the needs of the individual to learn within their educational environment. Secondly, persistent indoctrination, acceptance into the educational environment or the opportunity for participation, has not been met. Further to this, changes in attitudes will not be internalised when there is a poor match between participants' values and those of the educational process.

Despite pre-formed attitudes and views, there have been some positive attitudes reported at the beginning of training (Horsburg et al. 2001; Curran et al. 2010; Hind et al. 2003; Pollard et al. 2004; McFadyen et al. 2010; Zeeni et al. 2016). The motivation for early educating for collaborative practice activities has been to capitalise on students' positive outlooks at entry. However, some research has

shown that this positive outlook deteriorates after an early experience which was intended to at least sustain, if not improve attitudes to interprofessional learning (Pollard et al. 2005; Coster et al. 2008; McFadyen et al. 2010; Hudson et al. 2016). One study demonstrated that those participants with less positive attitudes were more negative after early IPE (Hudson et al. 2016; Coster et al. 2008). It is clear that the climate of different healthcare settings in which learning occurs, is important for a number of reasons. Firstly, it is essential to identify and understand if there is any risk that early activities may undermine attitudes to learning and working collaboratively. Secondly, it is critical that we understand any longitudinal changes in attitudes to educating for collaborative practice. There are a small number of longitudinal studies which are pertinent in exploring this issue.

Longitudinal studies of attitudes in educating for collaborative practice

Longitudinal studies are time-consuming and require significant organisation to complete. Not surprisingly, the number of reported studies in the literature is limited. One longitudinal study using a qualitative research approach was reported by Pollard et al. (2008b). They conducted semi-structured interviews with 52 participants from ten health and social care professions at various stages of their training, and identified that participants were exposed to both beneficial and lamentable examples of interprofessional interactions and behaviours. Reflecting on these data, Pollard et al. (2008b) questioned the extent to which attitudes and possibly behaviours are undermined by non-formal learning in the clinical environment. Two more recent studies demonstrated very different outcomes.

Zeeni et al. (2016) reported a gradual improvement in attitudes scores to interprofessional learning over three years of a structured IPE course run simultaneously with the participants' professional curriculum. Two cohort years of participants from five different health and social care professions (nursing, nutrition, pharmacy, social work, and medicine) participated in their three-year study. Participants were involved in five mandatory modules over three years, with a total of fifteen hours in small interactive study groups over this time. Participants were surveyed at entry and after each of the five modules. Attitudes were assessed using a modified version of the original Parsell & Bligh RIPLS scale (1999), which was validated for use in the Middle East by El-Zubeir et al. (2006). Their version used three factors (teamwork and collaboration, professional identity, and patient-centredness). In contrast, Wong et al. (2016) found little change in the attitudes scores to interprofessional learning of health professional participants over the three years of their study. Attitudes were assessed using a validated version of the RIPLS (McFadyen et al. 2010) which comprised four factors (teamwork and collaboration, positive professional identity, negative professional identity, and roles and responsibilities). Some of the participants who engaged in extra-curricular IPL activities demonstrated a small change in attitudinal score compared to those who did not participate in these activities. The extra-curricular activities were part of student-managed organisations, such as urgent care for the homeless, a free participant-run primary health clinic, health promotion to local schools, volunteering in a local soup kitchen, and community screening for diabetes and hypertension. The authors estimated that 75 percent of healthcare student participants were involved in these groups. Reported scores were highest (though modest) in students who

participated in patient-based collaborative practice activities, such as the free student-run health clinic.

Earlier longitudinal studies of attitudes to interprofessional education also demonstrated mixed results (Coster et al. 2008; Pollard et al. 2004, 2005, 2006, 2008a; Curran et al. 2010; McFadyen et al. 2010). Numerous reasons could be influential in these results, including the research design, influence of clinical placements, how educating for collaborative practice activities were organised and the robustness of the measurement instrument.

While robust research design ideally uses a randomised controlled model, this is not always achievable in educational research (McFadyen et al., 2010; Institute of Medicine 2015). However there have been exceptions. Taking advantage of a change in curriculum design to undertake a quasi-experimental design study, McFadyen et al. (2010) implemented a controlled longitudinal study at a time when the university was changing health professional courses to include IPE activities. They were able to compare the final cohort of students undertaking the original course (control group) to the students in the subsequent year undertaking the revised IPE course (experimental group). The intervention included lectures followed by small group discussions during the first year, with students from seven different health-related professions. Second and subsequent years consisted of themed days occurring once during each semester through all years of training. While the outcomes demonstrated overall that students in the experimental group developed a more positive readiness to IPE, the researchers noted that healthcare participants

from different professions reacted differently after the same IPE activity, on four of the five factors analysed. They identified that each of the health professional curricula involved allocating participants to clinical placements at dissimilar times, and posited that clinical placement may have influenced the results. This finding is reinforced by Pollard et al. (2006) who suggested that profession-specific placements **have the greatest influence on participants'** attitudes to interprofessional learning. Furthermore, Coster et al. (2008) reported that, with the exception of nursing students, health professional students became less positive over the three years of the study. The study suggested that a one-off IPL activity in first year is unlikely to maintain any changes in attitudes towards interprofessional learning. Deteriorating attitudes occurred despite students' regular contact with other health professionals outside planned IPL activities. The researchers hypothesised that the development of attitudes during training was based on more than just exposure to IPL activities.

Attitudes, as previously discussed, are cognitive processes that facilitate people's understanding of complex social experiences and are used as a short cut to effectively participate within the social world (Oskamp & Schultz 2005). Theory tells us that the formation of an attitude is a self-evaluation of past experiences from multiple sources (Katz 1960; Ajzen & Fishbein 1980; Oskamp & Schultz 2005). Therefore, it is not unexpected that attitudes to educating for collaborative practice will have multiple influences including clinical placements and informal social experiences in the work place. Further to influences on attitudes is the variety of ways educating for collaborative practice activities are organised.

A multitude of studies involving educating for collaborative practice activities can be found in the literature. In some studies these activities were mandatory, others were optional, many were run simultaneously with professional curricula, while others were extra-curricular. The debate on how best to educate students to be work-ready for collaborative practice is on-going. Clearly, academic education has a significant role in the education for collaborative practice but central to evaluation is the availability of an appropriate psychometrically-robust evaluation tool.

Readiness for Interprofessional Learning Scale (RIPLS)

The Readiness for Interprofessional Learning Scale has been one of the most widely used instruments for evaluating attitudes to interprofessional learning, being translated into more than six different languages (Arabic: El-Zubeir et. 2006; Swedish: Lauff et al. 2008; Japanese: Tamura et al. 2012; French: Cloutier et al. 2015; Dutch: Pype et al. 2016; German: Mahler et al. 2016; Turkish: Ergönül et al. 2018). Recently, the RIPLS instrument has been under scrutiny, with suggestions that it may not be a reliable instrument to measure attitude differences among students from different healthcare professions (Rajiah et al. 2016). Critically, there is doubt about what the scale actually measures (Mahler et al. 2015). The editorial by Mahler et al. in a 2015 issue of the Journal of Interprofessional Care compiled evidence of the three problematic issues with the psychometrics components of RIPLS. The original scale piloted by Parsell and Bligh (1999) showed that of the three factors – teamwork and collaboration, professional identity, roles and responsibilities, there was one factor, namely roles and responsibilities, which had unacceptable Cronbach alpha values of 0.43 or less. Parsell and Bligh recommended

further work to confirm the psychometric properties of the factor to measure changes in attitudes. Nevertheless, the roles and responsibilities factor continued to be problematic and many studies including the current study have omitted this factor. Most studies used exploratory or confirmatory analysis to validate the RIPLS scale, however the survey statements aligned with different factors in a variety of studies. This lead to the criticism that there was too much variation in the underlying factor structure, which in turn, lead to various modifications, addition of items and/or re-labelling of sub-scales. These changes have raised the question: what is RIPLS really measuring (Mahler et al. 2015)? A further problem is whether the scale is sensitive enough to be able to accurately measure changes in attitude, and so be useful for evaluation of educating for collaborative practice activities. Classic test theory was the basis for item construction in the RIPLS instrument (Oats et al. 2015). This theory does not scale items along a continuum for respondent ability and item difficulty to discriminate between low ability e.g. low or ambivalent attitude, and greater ability e.g. positive attitude. Rather, all items are equally weighted (Oats et al. 2015; DeVellis 2006). The outcome of this is that RIPLS is not able to discriminate difference in scores at the higher values known as the ceiling effect. Rajiah et al. (2016) illustrated this point. Their research explored whether RIPLS or another frequently used survey instrument - Interdisciplinary Education Perception Scale (IEPS) - could discriminate attitude differences among specific groups of students (gender, profession, ethnicity, and prior exposure to educating for collaborative practice activities). They demonstrated that in contrast to Interdisciplinary Education Perception Scale, RIPLS did not detect any significant difference in attitudes between junior and senior students across the four different

professional courses (N=809). Consequentially, creating items for an attitudes scale requires careful construction as many beliefs or intentions will not make satisfactory items for such a scale (Fishbein & Ajzen 1972).

Clearly, a variety of influences contribute to difficulties in understanding the development of students' attitudes to educating for collaborative practice. This thesis set out to explore the possible influences by using a mixed methods approach. At the time of this study's design and initiation, there were limited validated survey instruments available to evaluate any changes to students' attitudes. While questions had been raised about the reliability of the RIPLS, the decision was made to supplement the RILPS finding through a simultaneous exploration of the various dimensions covered in the survey using a qualitative measure. It was perceived that students' views and ideas would potentially shed light on how and why attitudes may change in the student sample. Semi-structured interviews were chosen as the qualitative method of choice as students could be asked about the results of the RIPLS data, enabling investigation of student perspectives of their learning environments over time.

Learning environment

The learning environment can be described as the total milieu of the medical school which surrounds the participant (Bassaw et al. 2003; Glen & Harden 1986). The medical learning environment is complex, as it occurs in a number of settings, and numerous elements combine to contribute to participant learning. Settings comprise the academic school including lectures, tutorial and skills laboratories and the

clinical setting which includes community, hospital and other placements. The characteristics of all of these settings have a powerful effect on the quality of learning during training (Biggs 2003; Ramsden 2003).

Clinical placements play a major role in students learning their profession. Learning during clinical placements is generally considered as adopting an apprenticeship model (Rassie 2017; Ash et al. 2012; Sheehan et al. 2010; Bleakley, 2006). During placements, students gain not only knowledge and skills including problem-solving skills, but also values, norms and language pertinent to their chosen profession. At these times, students will observe health professionals during their day-to-day work, including the quality and nature of health professionals' interactions with others during team activities and as individuals (Mann et al. 2011). The cultural climate and organisation of healthcare within the clinical setting as well as the interpersonal teaching and learning between participant and clinician provide a powerful set of influences within this learning environment (Hafferty 1998; D'Eon et al. 2005; Croker et al. 2016a). There are a number of theories which may be helpful to understand the influence of the various learning environments on participants' attitudes to educating for collaborative practice.

Theoretical underpinnings of educating for collaborative practice

The development of theory to guide educating for collaborative practice has been a long journey which is gathering momentum as evidenced in the literature. Using theory to underpin educating for collaborative practice efforts was initially the exception (Barr et al. 2005; Clarke et al. 2006; Cooper et al. 2001; Coyler et al.

2005; D'Eon 2005). However, more recently, there has been an abundance of theories under the microscope. Initially criticised as atheoretical, Barr (2005) recognised that the majority of educating for collaborative practice literature was implicitly based on adult educational theories. Reflecting on this, Barr (2005) stressed the importance of making theory explicit to encourage deep methodical, critical and reflective thinking to *inform decisions and generate propositions which can be tested* (p. 120). Later educating for collaborative practice interventions used social psychological theories such as contact hypothesis and social learning theory (Hean & Dickinson 2005; Sargeant et al. 2009; Clark 2006. More recently, organisational and system theories such as activity theory, complexity theory, behavioural theory of the firm, and contingency theory have been explored (Cooper et al. 2004; McMurtry 2011; Suter et al. 2013). Whether referred to as a theory, a framework (D'Amour et al. 2005), a conceptual model (Allan 2006) or a blueprint (D'Eon 2005), each offers an insight to guide and inform research. The theory in its simplest form:

> *…is practical, because it integrates and explains knowledge, predicts what is not yet known or observed, and helps to develop interventions to address problems* (Clarke 2006, p.579).

In essence, this research explored any influence that learning environments may have on medical students' attitudes and perspectives on learning patient-centred collaborative practice, during their undergraduate medical degree. Katz (1960) described conditions that can be the basis for attitude change and internalisation of new values, all of which involved social experience: a good match between values and attitudes of the new group to the values of the individual; persistent

indoctrination; and participation and acceptance i.e. a sense of belonging. This illustrates that exploration of medical students' social experiences was essential for answering the research question. Therefore, prominent theories from psychological (contact hypothesis, social learning) and sociocultural (complexity and situated learning) disciplines were investigated for their application to guide and inform this research.

Contact theory

One of the early theories used to explore attitude change comes from the seminal work of psychologist Gordon Allport (1954). In Barr's review of educating for collaborative practice studies, three percent of studies were explicitly based on Allport's theory of contact hypothesis (Barr 2005). Originating from his extensive work on the attitudes of European and African Americans, Allport's contact hypothesis (1954, 1979) attempts to explain that, under certain conditions, interpersonal contact is a powerful strategy to reduce prejudice and change negative stereotype views between different ethnic group members. While the central tenet of contact theory is that prejudice may be reduced as one learns more about a specific group of people, there are a number of criteria which need to be met. These include that each group member in the contact situation should have equal status, have the support of the authorities, be made aware of group similarities and differences, have positive expectations, and that the members of the conflicting groups perceive each other as typical members of their group (Allport 1979; Hewstone & Brown 1986). The strength of contact hypothesis to reduce stereotype views was confirmed by Pettigrew and Tropp's meta-analysis of over 500 separate studies (2004). Carpenter

and colleagues (Hewstone et al. 1994; Carpenter 1995a, 1995b; Carpenter & Hewstone 1996; Barnes et al. 2000; Carpenter & Dickinson 2016) were responsible for applying contact theory to educating for collaborative practice studies. Since that time, a number of these studies have utilised contact hypothesis to inform their research. As previously stated, by 2005, three pre cent of studies were explicitly based on Allport's theory of contact hypothesis (Barr 2005). Improvements in stereotypical views between different healthcare professionals have been demonstrated when all conditions (as stated by Allport) have been met (Carpenter & Hewstone, 1996). However, Barnes et al. (2000) and Ajjawi et al. (2009) demonstrated that no statistically significant change in participants' attitudes occurred when one of the conditions was not met.

There are a number of criticisms of contact hypothesis as a theory underpinning educating for collaborative practice. One is that there is a danger that the number of conditions specified becomes so exhaustive that they make the hypothesis impossible to disprove (Pettigrew 1998). Secondly, Hean and Dickinson (2005 p.485) stated that:

> *An understanding of how the organised contact of different professional groups of participants will reduce intergroup prejudice and improve their intergroup relations in both the short (during their pre-registration training) and long-term (when entering practice) is required.*

It is contended that contact theory does not yet explicitly explain the process of attitude change (Pettigrew 1998; Hewstone 2003). It is also argued that within healthcare there is significant hierarchy, especially in acute settings where the

various professional groups are not seen as equal. Blumer (1958) suggests that contact among groups who do not perceive each other as relative equals, triggers menacing reactions and risks escalating antagonism between group members. This can also be applied to various healthcare professionals groups. Finally, not all educating for collaborative practice interventions reported were compulsory activities, so those participants who held negative attitudes toward educating for collaborative practice would likely avoid contact situations entirely, and had they been included in the sample, study results may have been different (Hean & Dickinson 2005).

Interestingly, a more recently published study (Croker et al. 2015) described both positive and negative results covering changing attitudes to learning and working with other health professional students, in circumstances similar to those suggested by Allport (1954). The paper reported on the results of a hermeneutics-based study which explored the effects of co-location on how students learn to work with other health professionals during rural placements. Students from different professions shared accommodation while undertaking profession-specific clinical placements in the community and /or the hospital. The paper reported results stated that rapport building occurred when students shared educational, clinical and social space under certain contextual conditions. While the theoretical framework for the study was based on social capital theory, the results agreed with the central tenet of contact theory - that is, prejudice - may be reduced as one learns more about a specific group of people, under certain conditions. They also stated that *negative stereotypes may be inadvertently re-enforced* (p.41) when the contextual conditions were not met.

Social learning theory

Social learning theory is based on the work of several theorists. Early theorists included Sears (1951), who posited that the influence of culture and socialisation process, i.e. the internalisation of values, attitudes and beliefs by individuals, was central to learning and behavioural change. In contrast, Mischel (1968) focused on the effects of new experiences on learning and the variables involved, i.e. the mutual interaction of situation and the individual's traits. These trait variables include what he called **person variables** - how individuals categorise events, their ability to generate diverse responses to events, expectations of outcomes and self-regulation (Mischel 1973). Bandura (1977) expanded on the early work in social learning by combining behavioural learning theory and cognitive theory. Behavioural learning theory purports that learning occurs as a result of environmental stimuli, particularly the ability of reinforcement to establish behaviour or beliefs. Bandura (1971) criticised behavioural learning suggesting this theory relegated human behaviour to be solely controlled by external influences, neglecting internal processes such as personality traits and cognitive abilities. Cognitive learning theory (Cobb & Bower 1999) sought to explain how the mental processes of thinking, observing, categorising, and the ability to generalise were influenced by internal and external factors in order to produce learning in individuals. Consequentially, Bandura's theory provided a bridge between behaviourism and cognitivism. Bandura's theory of social cognitive learning encompasses attention, memory, and motivation, claiming that learning occurs through observation, imitation, and modelling. This occurs in the context of the social environment, so learning not only occurs by reinforcement but also by observational or vicarious learning.

Two of the three elements that Bandura considered important are pertinent to this thesis. Firstly, people tend to model themselves on those they aspire to be and, secondly, people tend to model themselves on achieving outcomes that they admire. It is through observing and interpreting the interactions between their role models that participants learn the behaviours and attitudes of their chosen profession (Boor et al. 2007, 2008; Roff et al. 2005; Arudt et al. 2009), as well as their attitudes to collaborative practice. Learning from role models, however, does not provide the depth of understanding about learning which occurs during work-based placement situations (Roff et al. 2005; Dornan, 2006; Arndt et al. 2009). Clinical placements present a rich, varied and complex environment for learning, and through the eyes of students are seen as exciting and challenging. However, what is learned cannot always be predicted by this theory. While social learning theory asserts there is a dynamic interaction between the learner and their environment, the basis of this theory is the transmission of learning by observation which neglects hands-on learning. The 1990s saw a radical change in thinking about educational theory, from learning as the transmission of knowledge to learning as socially constructed (Jonassen & Land 2012). Contemporary learning is viewed as *sense making* from participating in activities, social interaction and reflection. The learner's interpretation of these experiences makes learning *a wilful, intentional, active, conscious, constructive process ...* (Jonassen & Land 2012 p. ix). However, neither contact theory nor social learning theory clearly acknowledges what patients add to each student's learning environment.

Complexity theory

Complexity theory has been described as a theory of change and evolution (Morrison 2006). This contrasts with traditional scientific, cause-and-effect models which are linear and predictable. Complexity theory views physical and human phenomena as non-linear, unpredictable and adaptive, where interconnected relationships within a system are central (Morrison 2006). Notably, there is continuing controversy about whether complexity theory is a theory, science or paradigm (Thompson et al. 2016; Paley, 2010; Greenhalgh et al. 2011). Looking through the lens of complexity, real-world phenomena are multi-faceted and disorderly, all co-existing and interacting together on the edge of chaos (Cooper et al. 2004). As such, some theorists consider that complexity is more correctly termed as a science (Paley 2010). There is no generally accepted definition of complexity science (Thompson et al. 2016) in the literature, as the concept is a highly abstract and its application is extremely variable. Some researchers described complexity theory as a general *world view* which is required to be *refined, adapted and applied* for each research question (Greenhalgh et al. 2010 p.116; Davis et al. 2007).

Complexity science is a relatively new concept in healthcare research. To date, complexity has been used as a theoretical framework (McMurtry 2007; Cooper et al. 2004; Weaver et al. 2010; Pitkäaho et al. 2015), as a framework for data analysis (Miller et al. 2001; Provost et al. 2015), and to investigate results (Litaker et al. 2006; Ellis 2010; Anderson et al. 2014). Cooper et al. (2004) suggested that healthcare practitioner education cannot be understood in simple linear terms considering the varied processes that occur within the context of professional

practice. Clinical placements present such a rich and complex mix of experiences, and exposure to a variety of personalities and situations, that student learning is often unpredictable (Cooper et al. 2004). In addition, patients add to the complexity of each student's learning environment. Reflecting on complexity science, professional learning can be viewed as a complex adaptive system. The notion of complex adaptive systems evolved from researchers attempting to unify a number of core concepts from complexity theory – self organising, dynamic, interconnected with no single point of control - into a model (Morrison 2006; Rouse 2008).

Complex adaptive systems change and adapt in response to external and internal stimuli in the absence of any central control. Therefore, the outcomes of these systems are unpredictable; and although clinical placements have a core that is organised, activities within placements are dynamic. Activities change and vary depending on the various clinical situations and other resources available, and therefore not all learning outcomes can be predicted. For learning within complex adaptive systems, the multiple influences involved need to be considered (Cooper et al. 2004). For example, a key influence is the role of educators or facilitators. Optimal learning for collaboration during clinical placement requires the creation of a conducive atmosphere by the educator, particularly to develop relationships between student and educator, the ideal being that the educator is able to role-model collaborative practice. However, it cannot be assumed that all educators working in clinical situations have a positive attitude to working with all healthcare professionals (Croker et al. 2015). D'Amour et al. (1999) reported that previous

negative experiences and the differing professionals' approaches to work were influential on educators' behaviours; ultimately working collaboratively is voluntary.

More recently, a strong case has emerged in the literature pertaining to educating for collaborative practice for utilising more interpretive approaches to research in this area (McMurtry 2010; Légaré et al. 2011; Abu-Rish et al. 2012; Reeve et al. 2012), similar to complexity science is the concept of communities of practice. While the nature of relationships are common attributes in both theories, the communities of practice dimensions of co-participation, the value of informal learning and the emphasis on the social aspects of learning, are beneficial to the current research. Communities of practice also allows for patients to contribute to student learning as well as their own healthcare, as members of the communities.

Communities of practice

Communities of practice and situated learning are related social learning approaches and were used to guide and inform the theoretical framework of this study. Central principles include learning as a social activity not separated from work and practice but integral to it, and co-participation. Co-participation is a duality which describes how learning is constructed by members of a community of practice, through participation and involvement in work practices in conjunction with how the individual engages in and shapes the work practice.

Situated learning theory has two central concepts which form the basis of the theory. The first is **community of practice** which is a concept of how members of a

community learn together through shared experiences and shape meaning from the discussion of their experiences, to develop competence (Lave & Wenger 1991; Wenger, 1998). Knowledge resides in the communities' relationships and experiences rather than the individual (Lave & Wenger 1991; Wenger 1999; Fuller & Unwin, 2003; Dornan 2006). Members share resources and ideas for practice and have a sense of belonging. According to Lave and Wenger, communities of practice are everywhere. Examples can include a work or study group, or family. Membership is not conferred through appearance on a list of names; rather, members within the group are aware of those who belong. A community of practice may be best described as a group of people involved in mutual activities over time and within contextual situations.

The second concept is legitimate peripheral participation with **legitimate** meaning an expectation or right to be a new member of the community of practice; and **peripheral** meaning conceptually on the outer fringe with limited participation. It is only by involvement with the community that a new member can learn, and have a deeper understanding of the knowledge that resides in the community. Legitimate peripheral participation conceptually requires the new member, the student, to participate and contribute during placement with the community of practice in order to learn (Lave & Wenger 1991; Fuller & Unwin 2003; Dornan 2006). As these participants continue working within the community of practice, they become **old timers** in the shared activities of the community. During this process, students acquire professional socialisation into their profession. Students who do not get involved in the community of practice during placements are therefore likely to have

a more superficial understanding of the knowledge required to become qualified. The level of participation during placements will not only influence what students learn but also the quality of the learning (Pollard et al. 2008b).

The phenomenon of health professionals working together to improve the quality of healthcare services is a critical facet of developing team-based healthcare. Active participation by students in healthcare teams can contribute to their formal and informal learning. There is significant international literature on the benefits for medical student learning from longitudinal active participation in various communities or teams of healthcare practice (Norris et al. 2009; Gaufberg et al. 2014; Poncelet & Hudson 2015; Gentles 2017; Hudson et al. 2017). It is important to understand how student learning environments including these may be influential on developing attitudes to educating for patient-centred, collaborative practice. There is a major deficit in the literature on the impact of learning environments, and specifically professional specific placements, on students' attitudes to educating for patient-centred collaborative practice. Furthermore, there is a gap in our understanding of how existing health professional education can foster positive, or indeed undermine, these attitudes and train health professionals to work and collaborate within teams.

In summary, there exists a burgeoning number of theories on which to ground research into attitudes to, and perspectives of, educating for collaborative practice. Theories from social psychology (contact hypothesis, social learning) and sociology (complexity and situated learning) perspectives were explored as the framework for

this research. Situated learning theory was utilised to design and plan the qualitative research as the focus on learning together through shared experiences. Moreover, relationships within the learning environment were seen as pivotal in students' learning for collaborative practice. The ultimate outcome of educating for collaborative practice is to improve patient care. Increasingly, patients expect greater involvement in their healthcare, particularly in relation to decision-making. The community of practice theory is a framework which gives an opportunity for patient participation so care is focused on the patient.

Patient-centred care

Progress toward patient-centred care

Patient involvement in their own care, particularly in decision-making, has been a recent focus of healthcare education (Austria et al. 2013; Walton & Blossom 2013; Manninen et al. 2014; Reitmaier et al. 2015). Historically, clinicians made decisions about a patient's care, presuming that patients were unable to appreciate the clinical knowledge and its connection to his or her healthcare. Patient dissatisfaction with this situation has slowly grown, and the tables have turned, as patients increasingly recognise that the clinician may not appreciate or comprehend the patient's reality and their unique cultural and personal beliefs (Herbert 1997; Balinit & Shelton 1996). Patient-centred care may have originated from The Declaration of Alma-Ata which resulted from the 1978 International Conference on Primary Health at Alma-Ata. There is no worldwide consensus on a definition of patient-centred care but most have similar dimensions to those summarised below from the Australian

Commission on Safety and Quality in Healthcare report on patient-centred care (2011). Eight dimensions are commonly quoted as central to patient-centred care, as follows:

> *The widely accepted dimensions of patient-centred care are respect, emotional support, physical comfort, information and communication, continuity and transition, care coordination, involvement of family and carers, and access to care.* (Australian Commission on Safety and Quality in Healthcare 2011, p.1).

One of the early definitions of patient-centred care comes from the International Alliance of Patient Organisations in 1994, which defined patient-centred care as:

> *A collaborative effort consisting of patients, patients' families, friends, the doctors and other health professionals…achieved through a comprehensive system of health education where patients and health professionals collaborate as a team, share knowledge and work towards the common goals of health and recovery.* (International Alliance of Patient Organisations 1994 p. 8).

This was replaced in 2006 with a more detailed Declaration on Patient-Centred Care, revised in 2017, which extends the role of patient and consumers' decision-making to include participation in healthcare policy development. The dimensions are respect, choice and empowerment, patient involvement in health policy, access and support and, lastly, information. Unlike the Australian Commission on Safety and Quality in Healthcare and many other definitions of patient-centred care, Mead and Bower (2000) elaborated on the doctor's role in the patient-centred care relationship. They described five dimensions of patient-centred care including: the patient as a person, which implies seeing the patient in their individual

circumstances; the sharing of power and responsibility; and the therapeutic alliance i.e. a negotiated understanding of the goals and requirements of treatment. The fourth dimension was the doctor-as-person which recognises the integral role of the physician in the relationship. The fifth and final dimension, the biopsychosocial perspective, recognises the impact of more than the physical disease on the patient and broadens the conventional biomedical perspective. In light of the calls from governments, health professional associations and WHO for collaborative practice, the fourth dimension: doctors-as-person should be more inclusive of the other health professionals who may be involved in the patient's care. It is this point that forms a central focus of this thesis.

Patient-centred care has been shown to reduce diagnostic tests and referrals (Epstein et al. 2005; Little et al. 2001; Stewart et al. 2000), decrease hospital re-admission (Boulding et al. 2011) and improve patient safety (Weingrat et al. 2011). As early as 1972, health professionals recognised the value of patient involvement in their care. There is an argument that putting patients first can be the driver for professionals working collaboratively (Campion-Smith et al. 2010; Croker 2012). Epstein (2010) argued that patient-centred care is both a moral and ethical aspect central to the core *raison d'être* of health professionals. Increasingly, patient-centred care is more than putting the patient at the centre of care but viewing patients as partners in care (Canadian Interprofessional Health Collaborative, 2010b; Curtin University: Interprofessional Capability Framework 2011). In the 1972 Institute for Medicine conference report, the steering committee members noted that:

> *Without question, the patient himself is a member of the team and, in a democratic society, can be expected increasingly to exert his prerogatives to participate in decisions that affect his well-being*. (Institute of Medicine 1972, p.12).

It is over 45 years since this medical conference (Institute of Medicine, 1972) recognised the importance of the patient's involvement in the healthcare team and yet the required health education reforms are only now gathering momentum. Of greatest importance for increasing student opportunity for actively learning with patients is the re-structuring of learning environments to facilitate student involvement in continuity of patient care.

The famous Canadian physician William Osler stated that *the best teaching is that taught by the patient himself* (Osler 1905 cited in Spencer 2000). In more recent times, patient involvement has also progressed into non-workplace-based clinical education in medical schools. Simulated patients were first used in the 1960s, with their involvement in medical undergraduate and postgraduate education expanding rapidly since the 1980s (Barrows 1993). As the name suggests, simulated patients (healthy volunteers or actors) role-play health problems. They are trained to work with healthcare professionals for student learning in communication and diagnostic skills. Contributing to the increase in this form of education were changes in healthcare delivery and in the decreasing availability of real patients, coupled with concerns about lack of standardisation of clinical examinations (Walsh 2006). Simulated patients provide realistic scenarios and very authentic situations for students to develop communication skills (Wūndrich et al. 2008; Bradley et. al.

2003) and empathy (Wūndrich et. al. 2017). Communication and diagnostic skills are important basic skills in the life of a health professional. The students in this study were exposed very early in their medical course to situations in which they could develop these skills, through simulated patients in the clinical skills centre, as well as real patients in clinical situations. In subsequent years of the medical course, active involvement with patients increased through the hospital setting, and included advanced skill development during the community-based longitudinal clerkship in the senior years.

The patient's voice in healthcare

Involvement of patients in their own care, particularly decision-making, has been evolving since the middle of last century, moving away from the early paternalistic approach. The research literature reports that healthcare professional-patient relationships improve patient health (Street et. al. 2007) not just psychological health but physiological and functional status as well as symptom resolution and pain control (Stewart et al. 1995). The Australian Commission for Safety and Quality in Healthcare recognised the importance of patient-centred care stating that *a patient-centred approach makes care safer and of higher quality* (Australian Commission for Safety and Quality in Healthcare 2011, p.1). Recognition of the need to personalise healthcare is a global initiative which puts significant value on the patient's voice in healthcare.

Increasing awareness of the importance of the patient voice has been one of contributing factors to an increase in patient involvement in medical education. This

reflects the pressure from government initiatives to expand the involvement of service users and carers at all levels in public services (Carr, 2010, p. 4). Students and trainees also report huge benefits in learning with and from patients in simulated and real encounters. Learners value working with patients immensely in the context of structured learning events supported and supervised by more senior clinicians and educators. Patients can be involved in clinical teaching in many ways throughout the whole curriculum cycle. These include planning, design/development, teaching and workplace-based learning sessions and activities, assessment strategies and methods, and evaluation (Gordon et al. 2000). To develop effective clinical reasoning, learners need to see a wide range of unwell patients in different contexts (Eva 2005). They also need support in making sense of what they see, through discussion with and questioning from clinical teachers. Simulation is increasingly used at all levels of medical education to complement learning and assessment using real patients.

Patient-centred care is essential to the development of interprofessional collaboration (Canadian Health Services Research Foundation 2006; San Martin-Rodriguez et al. 2005; Barr 1998; Learning and Teaching for Interprofessional Practice [L-TIPP] 2009; WHO 2010). Woods et al. (2009) set out to develop a framework for interprofessional collaboration to guide healthcare educators, practitioners, and decision-making, in health and social care curriculum reforms for British Columbia, Canada. The resultant framework British Columbia Competency Framework for Interprofessional Collaboration condensed twenty competencies into three domains. Domain II focuses on patient-centred care as a prerequisite for interprofessional collaboration to be included as part of educating for collaborative practice. Patient-

centred and family-focused care, as defined by the University of British Columbia involves:

> …*working with other* [health professionals] *to negotiate and provide optimal, integrated care by being respectful of and responsive to patient/client and family perspectives, needs, and values* (Wood et. al. 2009, p. 626).

Educating for collaborative practice has been developing for some time as a way to also improve patient safety and quality care. In Australia, the Australian Commission on Safety and Quality in Health in its report on Patient-Centred Care (2011) discussed the importance of patient-centred care as a dimension of quality in its own right. Recommendation 6 states that *Patient-centred care should be a component of undergraduate and postgraduate programs for all health professionals* (p. 49).

As mentioned earlier, simulated patients were introduced the 1960s despite patients being involved in doctors' education since the beginning of medicine (Barrows & Abrahamson 1964). However, this has occurred in a culture of medicine which has emphasised the bio-physical aspects rather than appreciate the patient's perspective and unique cultural and personal beliefs (Haidet et al. 2010). Now, the role of patient-as-teacher is expanding. Rather than using patients as a living textbook where students learn about and on patients, the emphasis is a more humanistic stance which encourages students to learn **with** and **from** patients (Towle 2016). However, Haidet et al. (2010 p. 643) stated that patient-centredness *challenges prevailing professional norms*, and a number of studies have shown a decrease in attitudes to patient-centredness during medical education (Bombeke et al. 2010; Bombeke et al.

2011; Hook & Pfeiffer 2007; Hojat et al. 2009). Conversely, Howe (2001) used a small nominal group study to explore the impact of community-based learning - in contrast to the prior years in hospital and university - to provide learning in new but expected areas of medicine. They demonstrated that medical students valued the link that community-based placements provided between patient-centred medicine and learning. In particular, they highlighted the importance of long-term relationships with patients and the involvement of the whole team in care, although details of who was part of the team were not provided. McNair et al. (2016) also found that students had positive attitudes towards patient-centredness throughout their medical studies, and valued opportunities to practise patient-centred care. While the incentive is to include patient-centred care in all health curricula, the polarised results are concerning.

In 2013, Bombeke et al. reported results which provide some clarity to this dilemma. Their results demonstrated that students' scores from a validated questionnaire on patient-centred attitudes showed a decline after a twelve-month traditional clerkship of clinical speciality rotations. Presumably, to understand the findings, they subsequently interviewed sixteen students who had completed the original questionnaire. The qualitative results were surprising, revealing a more individualised approach to patient-centred practice, based on patients' wishes. The authors suggested that clinical experience provided the opportunities for students to master a deeper understanding of patient-centredness and reflect a more nuanced frame of reference in contrast to just accepting a standardised theoretical view of patient-centredness.

In the literature there are two similar but distinctly different views of patient-centred care. At one extreme is a classic view that the patient is ***at the centre of care*** with professionals being sensitive to their views and beliefs and involving patients in decision-making. This suggests patient involvement as an outcome rather than the contrasting view of the patient as a partner or member within collaboration of health professionals, and being integral to collaboration (Hudson et al. 2017). Sidani et al. (2014, p.134) stated:

> *Collaborative care consists of a partnership between the healthcare professional and the patient … to facilitate participation in all aspects of care … to explore treatment options for the management of the problem or concern, and to implement the agreed-upon treatment option.*

Bringing patients to the centre of collaborative practice to develop patient-centred collaborative practice may require a re-think by education stakeholders. This is perhaps best suggested by Bleakley and Bligh (2008), advocating for students and patients learning together, with the expert doctor as facilitator. Generally, student learning occurs during interaction with an expert doctor as the source of knowledge with the patient as supporter. Ironically in this latter model the student doesn't learn patient-centred care through the patient. In placing the patient with the student, in an active role as suggested by Bleakley and Bligh (2008), students learn together with patients in a forum of collaboration. Interestingly, this is remarkably similar to William Osler's comment over 100 hundred years ago.

> *For the junior student in medicine and surgery it is a safe rule to have no teaching without a patient for a text, and the best*

> *teaching is that taught by the patient himself.* (William Osler 1905 cited in Cleland et al. 2009 p. 477)

The context of this research

Workforce demands have necessitated an increase in the number of healthcare professionals required to meet Australia's needs. Specifically, there is an unmet demand for medical and other healthcare professionals in regional, rural and remote Australia. The Australian Government has addressed this need in medicine by approving the establishment of a number of new medical schools. The medical degree at the university where the current research is set is one of these new schools, and accepted its first intake of students in 2007. In addition to producing clinicians competent to practice medicine in all settings, it has a philosophy which includes an aim *to produce excellent medical practitioners with a commitment to patient-centred, evidence-based, reflective and cost-effective medical practice ...* (Graduate Medicine 2010).

The new school was also established at a time when the importance of teamwork in quality and safe healthcare was recognised globally. The publication of the WHO Guide WHO patient safety curriculum guide for medical schools in 2009, focused national and international attention on educating all healthcare learners for teamwork and collaborative practice. Increasing pressure was being exerted nationally by dedicated health professionals, government workforce and health and safety commissions, to address current and future healthcare challenges by developing *workplace professionals and education and training practices that*

facilitate team approaches and multidisciplinary care (Australian Health Ministers' Conference 2004, p.16).

Medical education in Australia was based on the UK model of six years of undergraduate education, followed by a twelve-month internship to gain full registration (Geffen 2014). Since the Australian Medical Council (AMC) formally accredited the first graduate-entry medical degree at Flinders University in 1995 (Geffen 2014), more medical schools have moved to a graduate-entry, four-year university program of education. Students are accepted into graduate-entry medical education after completing an undergraduate degree in a variety of disciplines, and many have prior professional healthcare experience. This diversity provides a rich environment for participants to learn medicine together.

An innovative medical degree

The research reported in this thesis was conducted at a recently established medical school in an urban, non-capital city, in Australia. The new four-year graduate-entry program established in this centre in New South Wales (NSW), introduced an innovative curriculum using contemporary pedagogy developments. The innovations consisted of:

- Case-based learning continuing through the four years of the program supported by lectures and tutorials;
- Early and sustained clinical placements in the local and wider NSW hospitals and GP practices, commencing in the second month of first year;

- Extensive weekly clinical skills education, university-based for the first two and one-half years then continuing into the longitudinal integrated clerkship;
- A large, diverse group of community members, contributing as trained simulated and real patients, involved in a substantial proportion of the clinical skills sessions;
- An interprofessional group of healthcare clinicians and academics. At the time of this research, the clinical skills education team consisted of doctors (generalists and specialists), nurses and a midwife who facilitated the skills sessions, supported by the local community of patients, physiotherapists and general practitioners;
- A twelve-month longitudinal integrated clerkship based in primary healthcare. The clerkship is a year-long placement comprising the latter six months of Year 3 and the first six months of year 4. This model of clerkship combines concurrent community-based and hospital-based experiences over the twelve months.

The medical degree is divided into four phases, with each phase involving different proportions of clinical and theoretical learning environments. Phase 1 is based at the two university campuses and, at the time of this research, included a three-week interdisciplinary clinical experience (placement) at the end of the first semester, where each student was placed in a work-place healthcare team and supervised by a non-medical preceptor. Phase 2 is hospital-based with participants spending four days per week for five weeks in each of seven clinical specialty rotations over

twelve months. For one day per week, students return to the university campus for clinical skills and lectures. During Phase 3 all participants undertake a continuous twelve-month community-based integrated clerkship placement in regional, rural or remote locations in NSW, which provide opportunities to work in the local hospital and other healthcare locations in the community, e.g. Royal Flying Doctor Service, child health or community centre. This commences two and one half years into the course. Phase 4 consists of three rotations, two of which are the student's choice and may be at a national or international location. One of the three rotations is a preparation for internship, based within the local hospitals.

The medical degree summarised above was the educational context for the participants in the current longitudinal research study. The structure of the four phases of the medical degree defined when and where data were collected in each section of the research project. On entry in 2010, all medical students from this one-year cohort were invited to participate in the research study (N=82). Sixty-eight percent of this first-year cohort agreed to participate and provided data longitudinally followed throughout the four years of their medical education.

As mentioned above, the mission of the Graduate Medicine program *is to produce excellent medical practitioners with a commitment to patient-centred, evidence-based, reflective and cost-effective medical practice* (Graduate Medicine 2010). The School aspires to the notion that the graduates will contribute to the enhancement of healthcare for **all** patients in all geographic settings, but particularly in regional, rural and remote communities. To achieve these aims in the context of

contemporary healthcare, graduates need to develop attitudes that foster collaboration and be inclusive of patients and health professionals from all groups in society.

The research question

This study followed a cohort of medical students as they progressed through a variety of simulated and real healthcare learning environments in their medical program, to answer the research question:

How is the learning environment influential on educating medical students for patient-centred collaborative practice?

To illuminate the necessary perspectives to answer the main research question there are three supporting questions:

- What changes to students' attitudes to educating for collaborative practice occur during medical education?
- What contributions do students' experiences have on their attitudes and perspectives with regard to teamwork and collaborative practice?
- How do students' experiences of learning environments contribute to their understanding of patient-centredness?

The research question arose from a deficit in the literature about how students learn best about interprofessional collaboration. The aim was to identify and describe the experiences to which students are exposed during these environments to understand

students' interpretations of these experiences. Furthermore, the research seeks to determine what contribution if any, these experiences make to developing attitudes and perspectives towards learning for and with patients, and attitudes to collaborative practice. Using a mixed methods approach for one cohort of medical students over the four years of their medical program, this longitudinal study explored the influences of the educational and clinical learning environments on attitudes to educating for patient-centred collaborative practice.

A significant number of research papers exist reporting on attitudes to educating for collaborative practice. Many take a quantitative approach (Becker and Godwin 2005; Coster et al. 2008; Bradley et al. 2009; McFadyen et al. 2010; Ateah et al. 2011; Myhre 2013; Ruebling et al. 2014; Hudson et al. 2016) with others taking a qualitative approach (Pollard et al. 2004, 2008b; Shoemaker et al. 2014; Baker 2011; Cavanaugh 2012). However, there is a limited number using both research methods (Pollard 2008a; Eccott, et al. 2012; Cusack et al. 2013) and few are longitudinal studies (Coster et al. 2008; Pollard et al. 2008a, 2008b; Curran et al. 2010). This research is unique in that it used qualitative methods to follow up, and understand the how and why of the quantitative results. The quantitative data gathered from surveys provided numerical data of the participants' attitudes to educating for collaborative practice (RIPLS questionnaire: McFadyen et al. 2005, 2006). Gathering of qualitative data, from semi-structured interviews with participants purposefully sampled according to their scores in the RIPLS, allowed participants to express their views and attitudes in their own words.

Summary

This thesis began by exploring some of the historic events which lead to the development of collaborative practice for high quality and safe healthcare, continuing onto educating students for this model of practice. The research on attitudes, and studies investigating attitude change during professional education were reviewed, as well as the importance of involving patients in their own care. The chapter concludes with an examination of the theoretical underpinning to the research and the setting of the research question.

The following chapter describes the rationale and detail of the research methods used. Firstly, this chapter will cover the philosophical perspective taken, the rationale for using mixed research methods design, and the quantitative and qualitative methods used to address the research question. It then continues with the method for data collection method and analysis to explore the influences of students' experiences on their attitudes to educating for collaborative practice and patient-centredness. A discussion of the researcher's stance and influences completes Chapter 2.

Chapter 3 will present the results from the five administrations of the Readiness for Interprofessional Scale (RIPLS) over the four years of the medical degree. The results are presented in tabular and figure form, showing analysis from the various statistical tests used. Results from the qualitative interviews conducted at the end of each different learning environment, together with a discussion of the concept maps created by the students toward the end of the longitudinal integrated clerkship, are

presented in Chapters 4-7. A synopsis of the changes in students' perspectives during the four years of their medical degree appears in Chapter 8.

The final chapter discusses the RIPLS and interview results in light of current literature and details key influences from the learning environment to answer the research question. Limitations to the study and recommendations will complete the discussion.

Chapter 2: Methods

Overview of chapter

This chapter describes the methods used to determine how the learning environment can be influential on educating medical students for patient-centred collaborative practice. Initially the medical learning environment and the geographical context of the research are summarised. Then the chapter describes the rationale and detail of the research methods and approach used to address the research questions outlined in Chapter 1. Thereafter, a discussion of the ethical considerations and the researcher as an instrument of the research, completes this chapter.

The medical learning environment

The medical learning environment involves a number of settings and numerous elements, all combining to contribute to students' experiences and provide the necessary education to prepare undergraduate medical students for internship and registration. The medical learning environments in which this research was situated are outlined below.

The research was conducted at a medical school in an urban, non-capital city in Australia. Established for just over ten years, the four-year graduate-entry program has had some minor changes in recent years. However, the program as it was when this research was conducted, is described here. The medical degree comprised a curriculum of integrated theoretical studies, formal clinical skills education and a

variety of clinical placements, using recent pedagogy developments of case-based learning, and early and longitudinal clinical experience.

Rather than individual traditional subjects such as anatomy and physiology, the curriculum was integrated and based on four strands or topic areas woven like a quadruple DNA helix throughout the years of training. The four strands comprised medical sciences; clinical competency; personal and professional development; and research and critical analysis. Lectures, tutorials and laboratory sessions were conducted by a highly diverse group of academics, and healthcare clinicians from the local health services. Each fortnight is based on a clinical case with each case representing one of 94 core clinical presentations which form the curriculum blueprint Appendix 1. The clinical case is usually introduced by way of a medical practitioner-simulated patient interview. The clinical competency strand included weekly clinical skills sessions and fortnightly clinical placements of one session per week. For the latter, students were placed into the work environment to apply learning from university sessions to real-world settings, and vice-versa. Placements alternated fortnightly, between the hospital and general practice for the eighteen months of campus-based phase of the course (Phase 1). Thus learning was focused on the patient, both simulated and real, from the beginning of the program.

The weekly clinical skills sessions were facilitated by an interprofessional group of healthcare clinicians. These clinical skills educators were united in their enthusiasm for the goal of providing authentic and hands-on learning experiences in partnership with students and simulated patients. The team consisted of doctors (generalists and specialists), nurses and a midwife who facilitated the skills sessions, supported by

the local community of patients, physiotherapists and GPs. Community volunteers were trained by a doctor and nurse, with support from the patient volunteer co-ordinator, to provide simulated medical problems and tasks, as well as constructive, actionable feedback to students. Over time, real patients were introduced and, together with trained simulated patients, this feature became the backbone of the university-based clinical skills program.

The medical degree is divided into four phases, with each phase involving different proportions of clinical and theoretical learning environments. However, in all phases the pedagogy for the core curriculum is case-based learning. Phase 1 is campus-based, and, in addition to the fortnightly half-day placements described above, included a three-week Interdisciplinary Clinical Experience (ICE) at the end of the first semester. During the ICE placement each student was placed in a work-place healthcare team and supervised by a non-medical preceptor. Phase 2 is hospital-based with students spending four days per week for five weeks in each of seven rotations over twelve months, and one day per week at the university campus. Three different hospitals within a 100 kilometre radius of the university hosted these rotations, with students rotating between medical (2), surgical (2), women's health (which includes obstetrics), paediatrics, and psychiatry specialties. Students also completed two separate eight-hour nursing shifts working with a nurse or midwife. During Phase 2, students completed their case-based learning online, usually working with peers. The campus days consisted of a number of lectures, and weekly clinical skills sessions.

The medical school is one of a limited number of medical schools worldwide, and the only one in Australia, where all students undertake a continuous twelve-month community-based integrated placement in regional, rural or remote locations, providing opportunities to work in the local hospital and other healthcare settings in the community, e.g. Royal Flying Doctor Service, child health or community centre. This longitudinal integrated placement, called a longitudinal integrated clerkship in the international literature, occurs during Phase 3 of the program. For Phase 3, commencing two and one half years into the course, students are allocated to one of eleven teaching and learning ***hubs*** within the state of New South Wales. While students are based in a primary health general practice setting, they concurrently complete other community and hospital clinical activities. During this time, students continue case-based learning with co-located peers and a local clinician. Importantly, extensive weekly supervised procedural skill education continues, building students' skills and confidence to facilitate participation and an active contribution to local patient care.

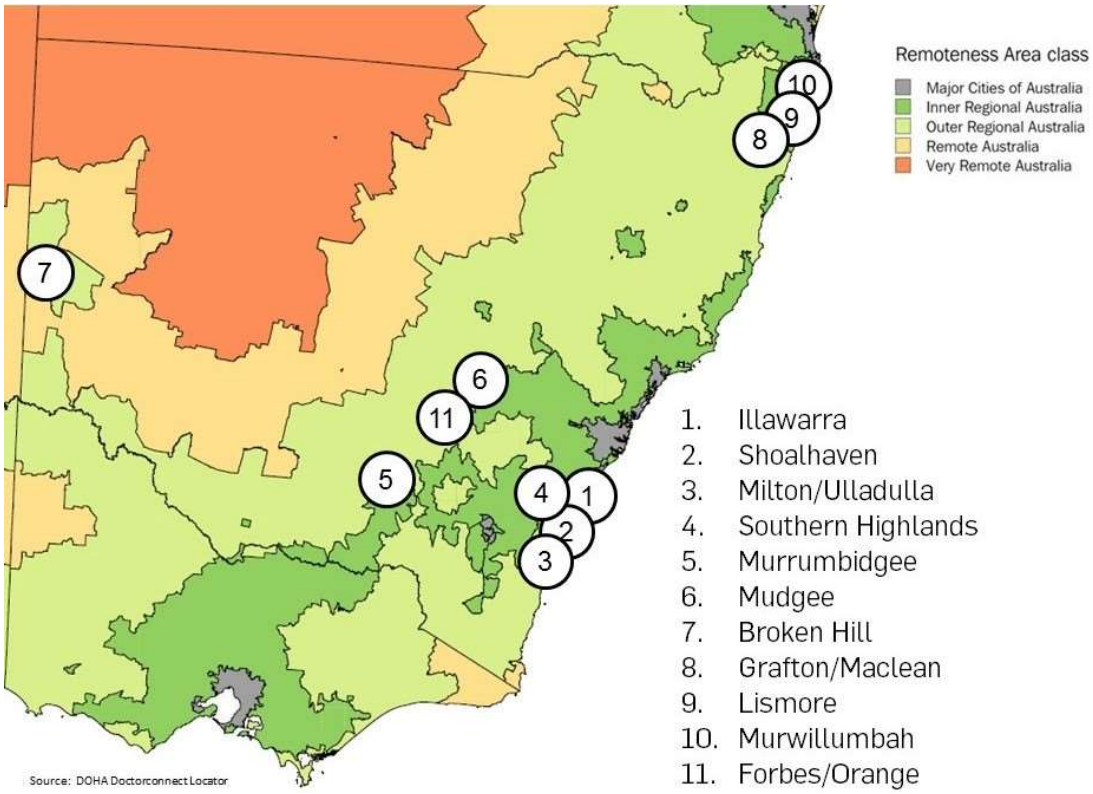
Australia is a vast country with a relatively small population, making equity of access to healthcare services difficult. The Australian Bureau of Statistics developed a geographic classification identified as the Australian Statistical Geography Standard- Remoteness Areas to allow quantitative comparisons between cities and the country. The Australian Statistical Geography Standard for remoteness, volume 5 (2016) is based on population size and the road distance to the nearest urban centre. Currently, there are five categories:

- RA1 - Major Cities of Australia
- RA2 - Inner Regional Australia

- RA3 - Outer Regional Australia
- RA4 - Remote Australia
- RA5 - Very Remote Australia

Congruous with the mission of Graduate Medicine, these categories were used to organise Phase 3 clerkships.

Figure 2.1 Map of NSW Phase 3 hub locations



SOURCE: UNIVERSITY OF WOLLONGONG GRADUATE MEDICINE
NOTE: FORBES/ORANGE (#11) HUB DID NOT EXIST WHEN THIS RESEARCH WAS UNDERTAKEN

Most participants in the thesis study were based in rural, non-capital city towns, categorised as outer regional (RA3) or inner regional (RA2) with a very small number of students based in a rural centre which services remote communities (RA4) for their longitudinal integrated placement. Some students completed their

placements within the area of the main campus, which is an urban non-capital city centre (RA1). The latter participants tend to be those with partners and/or children with work or educational commitments there. Phase 3 students, wherever they are allocated, continued case-based learning with co-located peers and a local clinician having extensive weekly supervised clinical skills activities, as described above. Phase 4 consists of three rotations, two of which are the student's choice and may be at a national or international location. One of the three rotations, preparation for internship, is compulsory, and is based within the local hospitals.

The next section will discuss the rationale for using a mixed methods approach to designing this research, followed by a description of the quantitative then qualitative methods used. Discussions of the research methods will include details of the participants, data collection and analysis.

Approach to research and mixing methods

Mixed methods has developed as a distinct method for research, emerging from the juxtaposition of different but compatible methods of quantitative and qualitative design (Johnson & Onwuegbuzie 2006; Mertens 2012; Maxwell 2016). Teddlie and Tashakkori (2018) broadened the notion that mixed method research just combines methods, to argue that researchers can pick and choose the best methods from both qualitative and quantitative fields to answer the research question. They also contend that current researchers using mixed methods research are from a myriad of philosophical perspectives or paradigms e.g. pragmatism, interpretive, constructivist, critical, participatory, post-structural (Gough 2002).

One interpretation of the term **paradigm** is that it provides the researcher with a guide for the design and method to answer a research question (Guba 1989). A more recent interpretation of the term paradigm by Merten (2007, 2010) explained paradigms in terms of assumptions related to ethics, reality (ontology), and epistemology that lead to different assumptions about the nature of systematic inquiry. During this research, the term **worldview** rather than paradigm will be used and is interpreted to include assumptions about how research is conducted, and as a philosophical view that is a lens through which the researcher understands the world.

Historically, the work of influential scholars such as Kuhn (1962), Guba and Lincoln (1989) and others resulted in alternatives to positivism, a worldview which had dominated social science research for most of the last century. This had been predicted by Kuhn (1962). He argued that new paradigms would arise when positivism could no longer provide the philosophical stance to understand new phenomenon of interest. Guba and Lincoln (1989) argued that there are valid and reliable methods which support the use of alternative worldviews for social science research. There is a continuing debate in the literature about the nature of numerous research worldviews with each have different philosophical assumptions creating a wider choice of research methods (Merten 2012). Currently, there are four main worldviews, post-positivism, transformative, pragmatism and constructivism. The following section briefly discusses these four worldviews to inform the choice of worldview in this thesis.

Post-positivism is also called **the scientific method** and holds the view that objective reality can be quantified by careful observations and measurement. This research uses strict protocols to reduce biases and control variables. Most research involves testing a theory (Guba et al. 2005; Creswell et al. 2018).

The transformative researcher believes that other worldviews do not address the inequalities of people marginalised in society and research needs to be political to advocate for greater action. Of importance is to study the lives and experiences of those forgotten in society, encouraging their participation in research design, data collection and/or analysis. This provides a voice to those disenfranchised by society and an opportunity to raise awareness and advocate for change (Creswell et al. 2018; Mertens 2009).

Constructivism, also called socio-constructivism, originates from the seminal works of Berger and Luckman, 1967 and explored by Lincoln and Guba in Naturalistic Inquiry (1985). Contrary to the post-positivism worldview the socio-constructivist's view is subjective, believing there are multiple realities. Reality exists in the mind of study participants and the researcher, constructed through a process of making sense from social experiences and participation in human activity. The researcher aims to interpret the context and situation of participants, while collecting data to understand the individual's perspective in their social setting (Creswell 2018).

Pragmatism is best described as a dualistic worldview as this philosophical position recognises that knowledge is both constructed and based on what can be seen and

proven, and has been suggested as a useful stance to guide mixed method research (Johnson and Onwuegbuzie 2006; Morgan 2009; Teddlie and Tashakkori 2013). Johnson and Onwuegbuzie (2006 p. 17) suggest that pragmatism *offers an immediate and useful middle position philosophically and methodologically* [to the researcher]. This suggests that the researcher can maintain both subjectivity and objectivity (Morgan 2009). The researcher is subjective in their reflection, being aware of one's continuous reflections and relationship on their own research, while maintaining objectivity to data collection and analysis (Alvesson & Sköldberg 2009; Shannon-Baker 2016).

Mixed methods research design

The pragmatic worldview is a useful philosophical view for mixed methods research as this offers the middle ground to the researcher. However due to previous research and experiences, the pluralistic view was more appropriate for this thesis research. Mertens (2012 p. 256) describes pluralism as a worldview being at the crossroads of post-positivism and constructivism, explaining *this stance allows the researcher to adhere to the beliefs of the post-positivist worldview in conducting quantitative-oriented data collection and the constructivist in qualitative-oriented data collection*. Then as a study progresses, the researcher can entwine the two beliefs, using the convergence and dissonance found in each of the approaches to allow for deeper understandings to flourish (Mertens 2012).

Pluralism as a worldview provided clear philosophical assumptions in conducting the complexities of this mixed method research, while avoiding criticism of over-

simplistic application of pragmatic philosophy (Denzin 2017; Biesta 2010). This approach was applied to the thesis research as data was collected longitudinally at relevant time points, to study changes of students' attitudes to, and perspectives of, educating for collaborative practice over the four years of a medical degree. The time points were driven by the structure of the medical course, with data collection occurring after students had experienced each of the learning environments as they progressed through the medical degree. The longitudinal mixed method design, with collection of both quantitative and qualitative data at similar time points, facilitated attainment of deeper understandings to answer the research question.

Combining quantitative and qualitative methods is not new. Anthropologists and fieldwork sociologists combined research methods in the late 19th and during the first 60 years of the 20th century. However this work was not called mixed methods (Pelto 2015). The aim of amalgamating the approaches is often to take advantage of the strengths of both (Maxwell 2016) or because conducting a study using only one method provides insufficient data to answer the research question. Greene et al. (1989) developed five groupings to organise the rational for conducting mixed method research (triangulation, complementarity, development, initiation, expansion) by initially reviewing the theoretical literature, and then refining the categories with an analysis of 57 empirical mixed method studies. Subsequently Bryman (2006), reviewing over 200 mixed method research studies, refined and extended Greene's original five categories, to over fifteen. Using Bryman's (2006) categories, there are three justifications for using mixed methods research in this study. The first is the use of research questions, which refers to *the argument that*

quantitative and qualitative research can each answer different research questions (Bryman 2006 p.106). Secondly the sampling, which refers to using one method to provide the participants for the other, was used. Lastly illumination, in which qualitative data are used to provide details to the quantitative results, often described as *putting meat on the bone*. That is, the qualitative data are used to illuminate quantitative data. The following paragraph describes how each of these justifications was used in the current research.

The scope of the main research question required that the different elements be approached with a sub-question to focus the research methods. Three supporting research questions were formulated. These questions sought data to illuminate specific perspectives relating to the main research question. The first of the supporting research questions required a quantitative approach to *measure any changes in students' attitudes to educating for patient-centred collaborative practice over the four years of the undergraduate medical degree*. The results from the quantitative research were also used to select the participant sample for the qualitative study (as discussed below in *Rationale for qualitative research: Sampling*). Understanding the influences on medical students' attitudes to educating for collaborative practice from the quantitative survey required adding a qualitative approach. It was essential to explore students' interpretations of their experiences and how they make meaning of these experiences, to answer the research question. The remaining two supporting research questions were best suited to a qualitative approach to explore *if and how students' experiences, and/or the learning environment, had influenced any changes in students' attitudes*. The relevance of

these methods to the research questions is elaborated in the subsequent sections labelled: *Rationale for quantitative research and Rationale for qualitative research,* respectively.

Rationale for quantitative research to explore students' attitudes

Bryman (2012, p.35) defined quantitative research as: *A research strategy that emphasises quantification in the collection and analysis of data ....* Quantitative research focuses on quantified and patterned data collection, and investigates aspects of a phenomenon, with questions of how much, how many and to what extent (Rahman 2017). For example, if policy makers wanted to institute a policy about mentor training, they would likely require some evidence that this training actually works. Interviewing a few individuals, or conducting a focus group, might be reflective of specific cases in which the mentoring training worked. However, it would not provide strong evidence that such training is beneficial overall. Stronger support for successful training would likely be evident when using a quantitative method. This research method accesses large numbers of subjects from a population or sub-population, and random selection of subjects ensures the group to be studied is representative of the total population. Randomisation enables generalisations to be made across to the total population (or sub-population) over time. Validity and reliability are enhanced by using prescribed experimental procedures. Results can be used to explore causal relationships and/or predict outcomes. By following the same structured processes and instruments, studies can be replicated and results compared. Compared to qualitative research, quantitative research can be relativity quick to

conduct. Therefore it is not surprising that the research literature includes a large and growing number of quantitative research papers reporting results of studies investigating attitudes to interprofessional learning (McFadyen et al. 2005, 2006, 2010; Mahler 2015; Hudson et al. 2016). While there are some using qualitative research methods (Weaver et al. 2011), there are a limited number of studies using both methods (Bradley et al. 2009) and a small number reporting changes longitudinally (Coster et al. 2008; Curran et al. 2010; Pollard 2004, 2005, 2006, 2008a). The research presented in this thesis is unique in this field, as it used qualitative methods to follow up, and understand the how and why of the quantitative results from the longitudinal Readiness for Interprofessional Learning Scale (RIPLS).

Rationale for qualitative research

The method used for qualitative research was determined by the nature of the research question. Interviews and focus groups allow the researcher to understand the beliefs, feelings and perception of individuals or small groups of people. Miles and Huberman (2009) explain that collecting qualitative data allows the researcher to maintain the *chronological* flow of information. This is important as it enables rich descriptions for investigators to *see precisely which events led to which consequences, and derive fruitful explanations* (Miles & Huberman 2009, p.1). Although qualitative research often focuses on understanding a single setting or a small number of people and can be thought of as anecdotal, when pooled across a

number of participants it provides a conceptual understanding and evidence that certain phenomena are occurring with particular groups or individuals.

The conduct of an interview can be unstructured, open-ended, highly structured or semi structured (Creswell 2003). Interviews may be undertaken with individuals by telephone, Skype™ or face-to-face or alternatively, with a group of people in a focus group setting. Use of open-ended questions and interviews allows researchers and practitioners to understand the individual's perspective, how their experiences are influential, and to recognise important antecedents and outcomes of interest that might not surface when surveyed with pre-determined questions. Semi-structured interviews have the advantage of maintaining the central priorities, while providing opportunities to clarify statements and picking up on points of which the researcher was not aware, or did not have knowledge (DiCicco-Bloom & Crabtree 2006). This style of interview provides a balance, with the flexibility of an open-ended interview and the focus of a structured ethnographic survey. In this way, insights into the issue from the perspective of participants can be identified and explored. Each method has strengths and weaknesses. Semi-structured interviews were chosen as the qualitative method for the current study for a number of reasons. Firstly, the nature of semi-structured interviews provided some direction but students were free to reply about any matter of significance to their experiences. Secondly, students could be questioned about the results of the RIPLS data, enabling exploration of students' understanding and perspectives. Lastly, this method allowed students to voice their

positive or negative views without influence from other students which can occur in focus groups.

Rapport is an important aspect of interviewing and the interviewer should develop a positive and trusting relationship with the interviewee. This needs to be regularly maintained, especially when interviewing occurs over a number of years, to ensure a safe and trustworthy environment where the interviewee's personal experiences and attitudes are respected (DiCicco-Bloom et al. 2006). Great care was taken to establish rapport in the first and subsequent interviews in this longitudinal study. This was particularly important to maintain interviewees' interest and involvement in the interview process and to allow accurate and authentic data to be collected over the four years of their medical education. It also provided the opportunity to cultivate a positive relationship with the students as they developed professionally, and to contribute to the reliability of the data obtained. Students were treated as future colleagues.

Sampling

This study used purposeful sampling employing the maximal variation technique. There are many purposeful sampling techniques which can be employed in qualitative research, such as maximal variation, homogenous sampling, typical case sampling, snowballing and so on (Creswell 2007; Etikan et al. 2016). Purposeful sampling also called non-random sampling allows for selection of individuals or sites for study based on the inquirer's prior knowledge of the population, and/or

because the selected individuals can inform the research problem (Creswell, 2007; Etikan et al. 2015). Qualitative researchers who rely on a purposeful sampling technique have been accused of bias (Hug 2003) so it is important that the sampling technique used is congruent with the study purpose and clearly conveyed to the reader of the research. Furthermore, it is essential that the selection process focuses on yielding rich, in-depth and detailed data on the research question (Patton 1999). The technique of maximal variation selects individuals (or sites) to provide the maximum diversity of perspectives, ideas and/or feelings relevant to the research question (Creswell 2003, p. 126; Etikan et al. 2015).

In this study the first RIPLS scores were used to select participants for interview. The RIPLS was first administered and data collected two months into the first year of medical training, and the student scores were rank-ordered by a data administrator. A sample of fifteen students representing students with high, middle and low RIPLS scores was selected by this administrator who was independent of the research, and these students were invited to participate in the semi-structured interviews. In this way, the RIPLS entry scores provided the maximum variation of attitudes for further qualitative exploration through semi-structured interviews.

Ethics considerations

When conducting research involving humans, due care and attention is required to ensure adequate safeguards to participants (Creswell 2018). Human research ethics approval was obtained from the University's Human Research Ethics Committee

(Approval No. HE09/12) and reviewed annually for the remainder of the data collection period. The key elements required to maintain the requirements under this approval are discussed below.

Informed consent

The National Health and Medical Research Council of Australia (2007, updated 2015) states that the guiding principle in obtaining a consent to participate in research is that it is voluntary. This involves a consent process in which there is a mutual agreement between the researcher and the participant, facilitated by the provision of adequate information about the study, as well as the opportunity to ask questions and seek clarification. All potential participants for this study were furnished with a one page information sheet (Appendix 2) which provided details of the methods, purpose, demands, risks and benefits of the research. Potential participants were also initially provided with verbal information by the researcher, who then left the room once further information was not required. An independent person remained with students to collect signed consent forms (Appendix 3). As this was a longitudinal study, from time to time participants were reminded of their right to withdraw at any time and consent was verbally reconfirmed.

Confidentiality, anonymity and privacy

A further requirement to conduct research is to ensure confidentiality, anonymity and privacy of the participants and their data involved in the study. There were a number of precautions used to ensure and maintain confidentiality. These included:

- All individual quantitative surveys were de-identified and coded by an independent colleague, then stored in a locked cupboard;
- The independent colleague stored the document linking student identification numbers to the individuals' codes in a locked cupboard;
- Audio recorded interviews were destroyed once they were transcribed, and hard copies stored in a locked cupboard;
- Students' real names were changed in the transcripts to pseudonyms;
- Electronic copies of data were stored on the researcher's password protected computer;
- Where the names of others were mentioned in the recorded interview, e.g. names of preceptors or peers, these were changed to pseudonyms in the transcript.

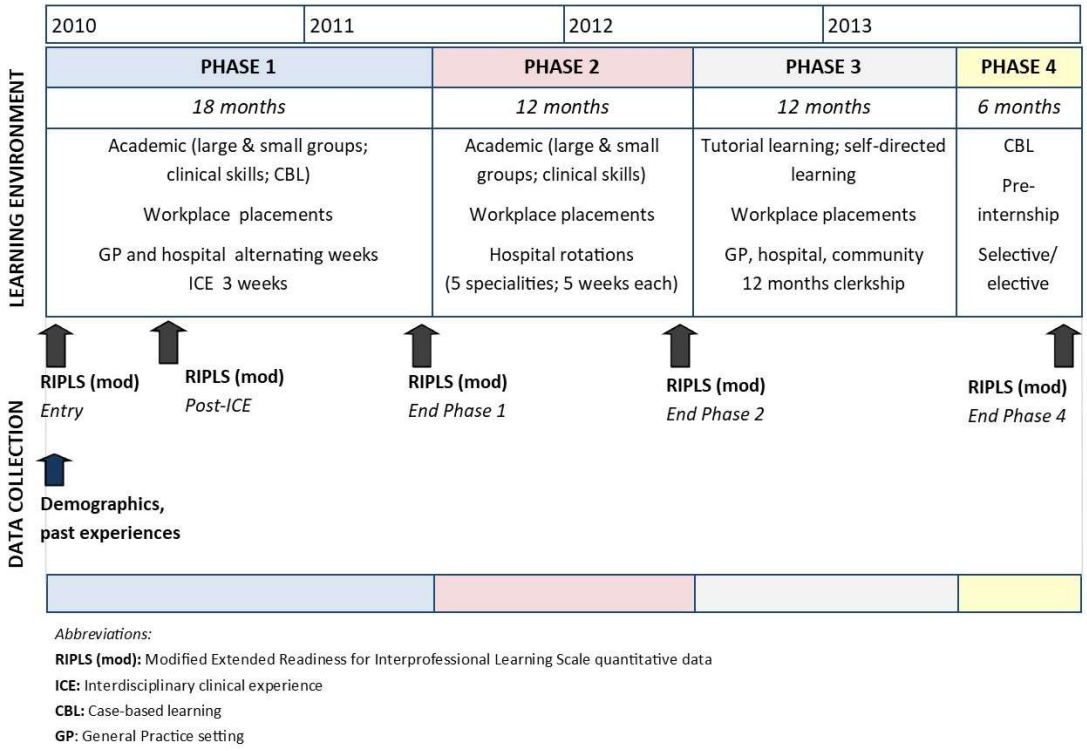
In addition to undertaking these privacy safeguards, the actual thesis has been written in such a manner to maintain anonymity and privacy of all persons involved directly or indirectly in the research. Hence, pseudonyms replace students' real names at all times, including when reporting demographics and past experiences, and when the interview quotes are included in the research results.

Quantitative research design

The quantitative component of the mixed methods research approach used a modified and extended version of the Readiness for Interprofessional Learning Scale

(RIPLS) which was administered at five data collection points over four years for one cohort of medical students.

Figure 2.2 Time points for quantitative data collection



The Modified Extended RIPLS

The original Readiness for Interprofessional Learning Scale (Parsell and Bligh 1999) was modified and extended before use to establish the baseline and monitor attitudes scores of the cohorts during the four years of medical education. The RIPLS modification and extension of some items is explained below.

The original 19-item, English version of the RIPLS (Parsell & Bligh 1999) has been modified by McFadyen et al. (2005), Reid et al. (2006) and Williams et al. (2012) among others. The modification undertaken by Reid et al. (2006) was used as the

basis for the RIPLS used in this research as it was deemed most appropriate for the cohort of graduate-entry medical students who participated in this study. Reid et al. (2006) completed a study which validated the RIPLS for post-graduate healthcare professionals. They reported that ten statements were added to the original RIPLS by one of the original researchers of the tool. These statements were added hoping to improve the third factor **roles and responsibilities** as well as adding a fourth factor of **patient-centredness**. Reid et al. (2006) validated their modified RIPLS with 682 healthcare workers, from four professional groups (response rate to mailed survey was almost 69%). The professional groups contacted (with the number of returns) were general practitioners (n=66), nurses (n=210), pharmacists (n=45) and allied health workers (n=225). Using principal factor analysis, Reid et al. (2006) established three factors. The resultant factors from the analysis were labelled - **teamwork and collaboration**, α= 0.88; **patient-centredness**, α= 0.86; and **the sense of professional identity**, α= 0.69 (Reid et al. 2006). Cronbach alpha value (α) are generally between 0 – 1, and used to assess internal reliability of the three factors. DeVellis (2012) ranked the Cronbach alpha value for acceptability by the following: below 0.60 is unacceptable; between 0.60 - 0.65 is undesirable; between 0.65 - 0.70 is minimally acceptable; 0.70 - 0.80 is respectable; 0.80 - 0.90 is very good; and above 0.90 DeVellis (2012) suggested decreasing the number of items (statements) in the scale. In the Reid et al study (2006), the factors **teamwork and collaboration** and **patient-centredness** had very good Cronbach alpha values meaning that the items (statements) in each factor were highly correlated, and therefore closely measure the same concept. These authors deduced that their

modified RIPLS with 23 statements was a valid tool for measuring the readiness of postgraduate healthcare workers to share learning together.

In the current study, seven additional statements which were validated in the Reid et al. 2006 study, were added to the original 19-item RIPLS, resulting in a total of 26 statements (enhanced RIPLS). As summarised below, the words **students** and **healthcare students** in the original RIPLS were substituted with **healthcare professionals** to reflect the context in which the participants in this study learned, resulting in the modified, enhanced RIPLS. It was thought that these statements were the most pertinent to a graduate-entry cohort of students.

As discussed in the previous chapter, the psychometrics of the RIPLS have been questioned. At the time of this study's design, there were limited validated survey instruments available to evaluate any changes to students' attitudes, and even then, there were debated issues with RIPLS. It was hoped that exploring the topic of educating for collaborative practice by including qualitative methods would shed light on some of the problematic areas.

The RIPLS served three purposes:

1. The scores on entry were used to provide a ranked score to identify students to be invited for interviews;

2. Longitudinally, data were used to track attitudes to interprofessional learning over the four years of training;
3. Data collected at each time point were then used to guide interview questions that followed.

In summary, the original 19-item version of the RIPLS (Parsell & Bligh 1999), modified according to Reid et al. (2006), was changed to reflect the clinical learning environment where students would be learning from other health professionals. The modifications were to terminology, reverse scoring of statements, and removal and addition of statements, with major changes as follows:

1. **Changes to terminology**

   The words *students* and *healthcare students* were substituted with *healthcare professional.* This RIPLS modification was done to reflect the context in which students would be experiencing interprofessional learning, working with, and learning from, other health professionals and patients. An equivalence study was conducted with the aim of examining whether equivalent student scores would be obtained from the administration of the original and modified RIPLS. The results demonstrated that student scores did not differ between the original and the modified RIPLS and student responses to *teamwork and collaboration*, *professional identity* and *roles and responsibility* factors*,* were equivalent between the two surveys (unpublished data, Hudson et al. 2012, personal communication).

2. Reverse scoring of statements

The original items 10 to 12 for the factor *negative professional identity* were reversed scored as performed by McFadyen (2005). The McFadyen study demonstrated that dividing the original *professional identity* factor into two separate factors (*positive professional identity* and *negative professional identity*) and reverse scoring the *negative professional identity* factor improved the reliability of the RIPLS when compared to the 1999 study by Parsell & Bligh. In this study *professional identity* was maintained as one factor, however statements 10, 11 and 12 as well as 20 and 21were reversed scored, to avoid response bias.

3. Removal of statements

The internal reliability scores for the *roles and responsibilities* factor, statements 17 to 19 have been reported as Cronbach $\alpha = 0.43$ (McFadyen et al. 2005). In the factor analysis completed prior to this study, the Cronbach α returned a value of 0.322 (N =333 see discussion below). These results are unacceptable (DeVellis 2006), suggesting there was little correlation between the three statements in this factor. Furthermore, they do not measure the same construct and are a threat to the internal consistency. Hence these statements were removed from analysis in this study.

4. Addition of new statements

Patient-centredness is one of six competencies for collaborative practice (Canadian Interprofessional Health Collaborative 2010). For medical

students and doctors to engage in collaborative practice the goals of care must be centred on the patient. The Reid et al. (2006) study included a *patient-centredness* factor, which achieved a high internal consistency, Cronbach α=0.86. Seven statements (Table 5.1 20–26) were added from Reid et al. (2006), two statements (20 & 21) had been added by the original authors to strengthen the RIPLS scale and were reversed scored (discussed previously). The remaining five statements (*patient-centredness*) were validated by Reid et al. (2006) for use in the postgraduate context. The high reliability of this factor provided statements which were a valuable addition to the RIPLS and cognisant with the aim of this study. The seven statements are 20 to 26, of the Modified Extended RIPLS (Table 2.1).

Table 2.1 Modified extended RIPLS

Factor	Statement
Factor 1 Teamwork and collaboration	1. Learning with other health care professionals will help becoming a more effective member of a health care team.
	2. Patients would ultimately benefit if health care professionals worked together to solve patient problems.
	3. Learning with other health care professionals will increase m ability to understand clinical problems.
	4. Learning with health care professionals before qualification would improve relationships after qualification.
	5. Communication skills should be learned with other health care professionals
	6. Shared learning will help me to think positively about other professionals.
	7. For small group learning to work, health care professionals need to trust and respect each other.
	8. Team working skills are essential for all health care professionals to learn.
	9. Shared learning will help me to understand my own limitations.
Factor 2 Professional Identity	10. I don't want to waste my time learning with other health care professionals
	11. It is not necessary for health care professionals to learn together.
	12. Clinical problem solving skills can only be learned with professionals from my own discipline.
	13. Shared learning with other health care professionals will help me to communicate better with patients and other health professionals.
	14. I would welcome the opportunity to work on small group projects with

	other health care professionals.
	15. Shared learning will help to clarify the nature of patient's problems.
	16. Shared learning before qualification will help me to become a better team worker.
	Items 17-19 removed
	20. There is a little overlap between the role of the doctor and that of the other health care professionals.
	21. I would feel uncomfortable if another health care professional knew more about a topic than I did.
Patient Centredness Factor	22. It is important to understand the patient's side of the problem.
	23. Establishing trust with patients is important to me.
	24. It is important to try to communicate compassion to patients.
	25. Thinking about the patient as a person is important in getting treatment right.
	26. In my profession one needs skills in interacting and co-operating with patients.

Preliminary study of the modified RIPLS

Prior to the use of the modified RIPLS for the current research, a confirmatory factor analysis study was conducted (N=333) to assess the validity and reliability of this scale for the proposed student population. This analysis was used to test several models for validity, while Cronbach alpha values on the factors were used to assess internal reliability. The models were evaluated by considering the following indices, and whether they met certain criteria (Schreiber et al. 2006): normed chi-square < 2; root mean square residual (RMR) close to zero; goodness of fit index (GFI) >= 0.95; adjusted GFI >= 0.95; comparative fit index (CFI) >= 0.95 and the root mean square error of the approximation (RMSEA) < 0.06.

Initially we tested a four factor model comprising teamwork and collaboration, negative and positive professional identity, and roles and responsibility. Although the model fit was reasonable (Normed chi-squared = 1.683, GFI = .917, AGFI = .888, CFI = .940, RMR = .026, RMSEA = .050), the internal consistency of the roles and responsibility factor was poor (α = 0.322). Consequently, the items that

comprised this factor were removed from further analysis. Three models were further assessed. These models were a:

1. One factor model of the RIPLS;
2. Two factor model where the first factor was **teamwork and collaboration**, and the second factor was **professional identity**;
3. Three factor model comprised of **teamwork and collaboration**, and **negative** and **positive professional identity**.

The goodness of fit indices for each model are presented in Table 2.2.

Table 2.2 Goodness of fit indices for three models

Model	Normed chi-squared	RMR	GFI	AGFI	CFI	RMSEA
1	1.941	.022	.925	.891	.942	.058
2	1.449	.021	.931	.900	.964	.046
3	1.839	.021	.927	.896	.948	.055

RMR = ROOT MEAN SQUARE RESIDUAL; GFI = GOODNESS OF FIT INDEX; AGFI = ADJUSTED GOODNESS OF FIT INDEX; CFI = COMPARATIVE FIT INDEX, AND RMSEA = THE ROOT MEAN SQUARE ERROR OF THE APPROXIMATION.

These results suggest that all three models are feasible. An analysis of the reliability of the factors showed that **teamwork and collaboration** yielded a Cronbach alpha of 0.815 with CITC (corrected item-total correlation) range = 0.458-0.592; **professional identity** yielded a Cronbach alpha of 0.808 (CITC range 0.39-0.649), **and negative and positive professional identity** yielded alphas of 0.262 (CITC range 0.311-0.509) and 0.837 (CITC range 0.615-0.711) respectively.

The goodness of fit analysis suggested that a one, two or three factor model was feasible; however the internal consistency scores indicated that only the one and two factor models had good content validity. The three factor model with **negative professional identity** ($\alpha = 0.262$) is poor; so for this cohort of students, the items 10 - 16 (Table 2.1) all measure a single construct of **professional identity**. Previous work on the internal consistency of this factor has been variable, reported as acceptable in a number of studies (King et al. 2012; McFadyen et al. 2005), but also poor (Lauffs et al. 2008; McFadyen et al. 2006). This instability suggests that for a coherent factor structure, the RIPLS factor negative professional identity is more usefully combined with positive professional identity into one factor.

The Cronbach alpha value of 0.322 for the factor **roles and responsibilities** is consistent with previous work (King et al., 2012; McFadyen et al. 2005; McFadyen et al. 2006; Parsell & Bligh 1999). All these studies have collected data from students in junior years of training and some with a mixed profile of student years. Only an early study in 1988 by Parsell & Bligh, cited in McFadyen et al. (2005) reported an acceptable Cronbach score ($\alpha > 0.65$). In that study, forty-three percent of students were in their final year of training. An acceptable score for this factor has not been reported in the literature since. It has been suggested that students in junior years lack experience and understanding of what their roles and responsibilities will be, contributing to poor content validity (Lauffs et al. 2008; McFadyen et al. 2005; McFadyen et al. 2006). However, Reid et al. (2006) when validating the psychometric properties for an extended RIPLS in the postgraduate context found the Cronbach scores for the individual items in the **roles and responsibilities** factor

were between 0.42 and 0.58. While this is some improvement it suggests that the items in this factor are not reliable and should be removed.

The two factor model consisting of **teamwork and collaboration** and **professional identity** appeared to be the most useful of the possible factor structures for the modified RIPLS in the cohort of Australian graduate entry medical students studied for this thesis. The two factor model was feasible and had good construct validity in this population of students. The items contributing high internal consistency to the factor **patient-centredness** in the Reid et al study (2006) were added to form the three-factor modified extended RIPLS with 26 items.

Participants

All students (N=82) in one entry year (2010) to the Graduate Medicine faculty were invited to participate in the quantitative part of the research study. Students were provided with a participant information sheet and consent form (Appendix 2 and 3). An independent person consented the students prior to the commencement of a lecture in the third week of Phase 1 (See Figure 2.2) of their course.

Data collection

The modified extended RIPLS was administered to the student cohort at the following time points (Figure 2.2):

1. On entry to the course
2. Post-ICE placement (Interdisciplinary Clinical Experience)
3. End of campus-based program
4. End of traditional hospital rotations
5. End of medical education course

On entry, demographic data including age, gender, prior degree, previous work experience and any health-related job before commencing the medical degree were also collected. A data analyst maintained a longitudinal database of the cohort's RIPLS scores and analysed data, independent of the researcher.

To select students to provide the qualitative data, analysis of the first RIPLS data collection (entry data) from this student cohort was undertaken. The cohort scores were striated into low, middle and high RIPLS scores by an independent administrator. A purposeful sub-set of students who had recorded low, middle and high RIPLS scores was then selected. Five students from each score level, a total of fifteen students, were invited to participate in the longitudinal semi-structured interviews that would yield the qualitative data collected at five time points during the four years of the undergraduate medical degree (Figure 2.2).

Analysis of RIPLS data

Statistical analysis of the longitudinal RIPLS data was carried out using SPSS version 22.0 (IBM, NY, USA). General linear modelling (GLM) was used to provide estimates of the marginal means for the repeated measures of the RIPLS data.

Qualitative research design

Participants

As previously reported, the first RIPLS scores were collected when the 2010 cohort of students entered medical school. The scores were rank-ordered by the independent data analyst, who purposefully selected a sample of fifteen students representing students with high, middle and low RIPLS scores. These fifteen students were invited by the researcher to participate in a series of semi-structured interviews at designated times during the course. Each student was provided with a participant information sheet (Appendix 2) and consent to interview form (Appendix 4). The inclusion of fifteen study participants was undertaken in anticipation of some drop out of students over the four years, and the expectation that there would be sufficient involvement of students to complete the data collection over the entirety of the course. One student dropped out just prior to the first interview, a further student was lost to extended illness. When result coding the RIPLS results, the researcher (PhD candidate) was blinded to the identity of the individual students and their RIPLS ranking.

Development of semi-structured interview questions

A standardised interview protocol with open-ended questions and probes was used to elicit responses for each of the five interviews conducted with the sample group over the four years of education. While using an interview guide to maintain focus, in order to gain further insights into students' reconstruction of their experiences required departure from the prepared interview guide to follow each interviewee's interest. Probing questions and gestures also allowed for exploration of students' attitude to educating for collaborative patient-centred practice. Probing questions, asking students to provide examples, encouraged students to discuss events important to them. Delving deeper about the effect of the event or experience on the student, often illustrated the influence(s) of learning environment. Insights were revealed when the interplay between students' expectations and the reality of the clinical workplace were explored.

The protocol focused on broad themes based on factors from the literature which may have influenced the range of student attitudes to educating for collaborative practice, and later from reflection on previous interviews. The interviews commenced with an icebreaker question designed to encourage the interviewee to relax, and to encourage conversation.

Interview questions were developed as open questions, to avoid questions with strong positive or negative associations, and were not framed in such a way as to lead the interviewee or bias the answers (Creswell, 2003). The advice to use non-

directional questioning (Merton & Kendall 1946) was also followed so the interviewees were free to discuss matters of importance to them. Further elaboration was stimulated by the use of probes - silent pause, echo or reflective probe and Uh-huh probe (Spradley, 1979). This led to two types of open-ended questions in the semi-structured focused interviews. The first, type A questions are response structured, stimulus free, such as: *What did you learn from the health professionals you worked with?* Secondly, type B questions are stimulus structured, response free for example: *How do you feel about the learning environment of the medical school?* Both types of questions provided some direction but the interviewee was free to reply about any matter of significance to their experiences (Merton & Kendall 1946).

To identify changes in the students' attitudes to patient-centred collaborative practice, the interview questions probed firstly, the contribution of student experiences to their attitudes and perspectives with regard to teamwork and patient-centred collaborative practice and secondly, how students' experiences of learning environments contributed to their attitude to, and understanding of patient-centredness (Table 2.3). Variations of interview questions at each of the time points reflected the RIPLS results.

Table 2.3 Interview topic areas for each data collection point

	Research Question: What contributions do students' experiences have on their attitudes and perspectives with regard to teamwork and collaborative practice?	**Research Question:** How do students' experiences of learning environments contribute to their understanding of patient-centredness?
Data Collection	**Interview topic areas:**	**Interview topic areas:**
Entry	During previous degree and placements • Past work experiences • Peers ideas of learning from health professionals? • Family & network influences • Media portrayal of health professionals • Experiences of teams e.g. during placements, sport, other	Prior experiences of the student in health care as patient or that of a close relative or friend
Post ICE	• Belonging or inclusion in the team assigned to • Participation and learning during placement • Development of relationships with HP/ patients/ others • Observations of health care organisation and vicarious learning	Organisation of the ICE placement Students' perceptions of the observed interactions between professionals and patient/s Involvement in case or family meetings
End Phase 1	• Experiences of team teaching • Perceptions of the medical school's educational climate • Explore placements experiences • Discussion of post ICE modified extended RIPLS survey results • Awareness of collaboration	Simulated patients' involvement in students' learning Development of relations with patients and simulated patients
End Phase 2	• Belonging or inclusion in the team assigned to • Participation and learning during placement including access to patients • Development of relationships with HP/ patients/ others • Characteristics of the learning environment	Development of relationships with patients Students involvement in patient care Observed role of patients in their own care
End Phase 3	• Participation in the GP practice, other staff, activities, clinics • Development of relationships during placement • Culture of the GP practice & other placement sites	Development of relations with patients and their family
	Graphic data: a concept or mind map was used. The aim was to gain a visual understanding of the important people and settings and their connection to the student. Students were asked to draw a concept or mind map to gain a graphic representation of their experience during the phase 3 community based placement.	
End Phase 4	No Interviews	No Interviews

Qualitative data collection

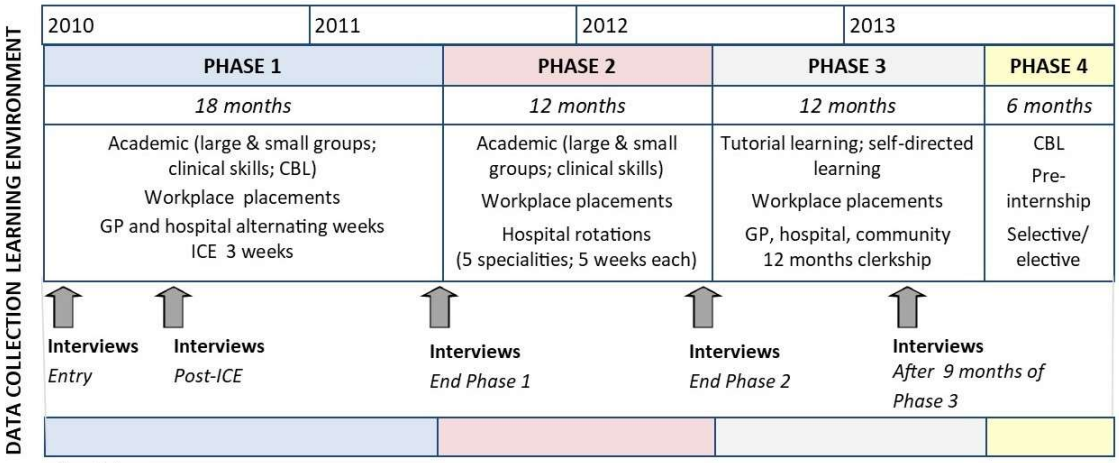
All students were contacted by email, and a date, time and venue arranged to suit the student's educational and personal commitments. The location of interviews was arranged to suit the convenience of interviewees and was initially a room on either of the University campuses. However, during Phase 3 when students were based in one of ten placement locations throughout New South Wales, the researcher arranged for interviews on site. All interviews during Phase 3 were conducted at an appropriate location negotiated between student and researcher, ranging from the local community library to a hospital educational room. Prior to the first interview, the nature of consent, reminder of the confidentially and the interview process were discussed, questions were answered and a signed consent obtained by the interviewer. All interviews were audio-recorded with each student's permission.

All names for the coded results were provided as non-stratified list, by an independent person, in order that the interviewer remained unaware of the individual students score. During any university education, there are students who struggle either personally or academically, so it was that two of the students who had agreed to be interviewed, graduated the year after their peers. Both of these students agreed to remain in the study until graduation.

The same subset of 13 students was interviewed at five time points, namely on entry, post-ICE, after completion of examinations for campus-based program (Phase 1) and traditional hospital rotations (Phase 2) then nine months into the community-based Phase 3 (Figure 2.3). Students' perspectives on the educational environment

including team characteristics, relationships and participation, and any awareness of collaboration were explored during these interviews.

Figure 2.3 Time points for qualitative data collection



Abbreviations:
Interviews: Semi-Structured interviews of representative students for qualitative data
ICE: Interdisciplinary clinical experience
CBL: Case-based learning
GP: General Practice setting

Mind maps

During the Phase 3 interviews students were asked to create a mind map based on their understanding of the learning environment, the people, places and situations in which they were involved, during the longitudinal clerkship. Defined by the Macquarie Dictionary as: *A diagram in which information is represented visually, usually with a central idea placed in the middle and associated ideas around it* (Macquarie Pocket Dictionary, 2010, p.745). In its simplest form a mind map is used to organise information, ideas or knowledge in a visual or graphic form. Mind maps are a flexible tool in which ideas, experiences and information are organised around a governing concept or theme (Buzan 1974). As a tool for data collection they can be used in two ways. Firstly, as a stand-alone method, or secondly used in

conjunction with other forms of data collection, e.g. interviews, to gain a greater understanding of the relationships between ideas from the participant's point of view (Wheeldon 2010). A systematic review, conducted by Umoquit et al. (2011) of the use of mind maps, found a number of papers reported that as a data collection tool, minds maps provided more holistic coverage of the topic and gathered more unsolicited data than traditional methods. Wheeldon (2011 p. 512) reported that participants who had completed mind maps *identified a greater number of unique concepts and provided more in depth responses about their experience.*

During this research project, mind maps were used to gain a greater understanding of student learning environments and their relationships with other health professionals during their longitudinal community-based placement. Students were supplied with paper, a set of felt pens, as well as cut-outs of unnamed individuals and groups and pictures of buildings. The instructions were as follows:

I want to get an understanding of the learning environment.
Can put a mind map together of who you learned from, who you think might be learning from you as well so the learning environment and the connections. Add the people and their role.

Once the diagrams were completed, the interview continued with a discussion explaining their mind map. The process of completing the mind map was a useful experience for the researcher to explore relationships and experiences which were important to each individual student interviewed. These mind maps were analysed

in conjunction with the interviews for supporting data to the emergent themes from the interviews.

Thematic analysis of interview data

All interview transcripts were transcribed from digital recordings by a transcribing service. Initially, all transcripts were checked with the digital recordings to ensure accuracy of transcribing and to complete missing words or part sentences.

In the early stages of analysis Nvivo 7 data management software was used to aid analysis; however, it was found to be too restrictive. Data were forced into small units - nodes - which split the data and decreased the richness of the text. Thus, manual analysis was undertaken with repeated checking back to interviewee's digital recordings. All de-identified interviews were printed with wide margins to facilitate notes, memos and impressions. Interviews for each of the five time points of data collection together, were bound and sent to the other reviewers. Initially, to help frame the analysis process, meaningful points were highlighted and notes made. These were then grouped into themes, loosely based on the study objectives. Data were consolidated into themes with quotes as evidence of thematic ideas. Deconstructing and reforming themes involved a process of data comparison to ensure adequate conceptual similarities between them.

A similar method of thematic analysis was independently completed by a further two researchers, who analysed all de-identified interviews. One was a Professor of

Medical Education working and researching in this topic area, and who was responsible for initially setting up all experiences in the Clinical Competency theme, including the Clinical Skills Centres and clinical placements (including the Phase 3 longitudinal integrated placements) for the medical school. The second, an experienced qualitative researcher in public health and medical education, has been involved in lecturing and curriculum development in the Graduate Medicine school. This method, having several analysts independently analyse the same data is known as analyst triangulation (Patton 1999), was used to reduce systemic bias. In this situation, multiple analysts comparing their results for the same data provided important checks to prevent ignoring information which did not agree with the analyst's beliefs. It also aimed to reduce selective perception and interpretive bias (Cohen & Crabtree, 2006), a process where information which is ambiguous is interpreted inappropriately. The analysed themes and ideas were discussed by all three researchers and provided a rich source of information for lively discussions. Patton (1999) argued for the importance of seeing the diversity of perspectives rather than coming to a consensus, as this provides a richer, detailed understanding of the phenomenon under investigation. It is important to consider not just what the person is saying but also what they are not saying (Creswell, 2018). Spirited discussions occurred after each of the five rounds of interviews had been analysed. Though all analysts may not have agreed on all themes initially, the discussion of differences was a source for further consideration and reflection. This provided opportunities to review and reconsider previous themes. This iterative process continued throughout the period of analysis, recording of each round of analysis and into the writing-up stage of the thesis. It was during this time of reflection, considering the various

themes from the five rounds of interviews and drawing together the meaning the interviewees ascribe to their experiences, that it emerged that these themes describe the major players and settings in healthcare teams. This was then used to summarise the themes under the headings of: the patient, doctors, health professionals, students and the learning environment. See Table 8.1.

Researcher as instrument in research

Creswell (2018) emphasised the importance, when conducting qualitative research, of the researchers providing information about their experiences, beliefs and stance. This may allow the reader to understand the contributions the researcher affords the study, as well as the experience which supports the execution of the work. In the subsequent section, I will first illustrate my experiences in research methods and techniques, then my position as a lecturer which allowed access to the students who are the focus of this research.

My experiences in qualitative research has been in a number of diverse settings. Starting in 1980, I completed an honours year exploring primary school children's views of food. Subsequently, I have completed subjects in research methods and qualitative skills and conducted numerous small quantitative and qualitative research projects involving face-to-face and telephone interviews and focus groups.

One of the challenges in this research was to strike a balance between myself as the researcher and as a member of the Graduate Medicine school. The position held at

the time of this research was as a lecturer/ tutor in clinical skills. Dwyer and Buckley (2009 p. 55) stated that *when a researcher is an insider,* [they] *share the characteristic, role, or experience under study with the participants*. Being an insider in qualitative research has been criticised, as the researcher may be biased in their approach. However, being an outsider also has its own issues (Dwyer & Buckley 2009). In many ways, l could be considered an outsider in the medical school environment, as l had not been a medical student and therefore not a medical doctor. However, in the context of this research, I could be described as an insider, being privileged to have had a variety of experiences of the inner workings of hospitals and community culture to which students were to be exposed. In this unique position I was aware of the tensions of being a mature female nurse in a medical school and worked creatively to occupy the space in-between.

There are limited numbers of registered nurses with a continuing lecturer position in a medical faculty in Australia. This position afforded a great opportunity to role model interprofessional collaboration in the Clinical Skills centre. The clinical skills education team as previously discussed, was a diverse group of healthcare professionals and supported each other as we navigated this new terrain (to us) in developing and facilitating the clinical skills program. United, we worked towards a common goal of excellence in clinical education. During the early years of the program I presented at national and international conferences on the topic of this thesis and subsequently published in collaboration with others on interprofessional learning. One of the greatest rewards as a member of the skills team was to contribute to the training of simulated patients. This was a great opportunity to build

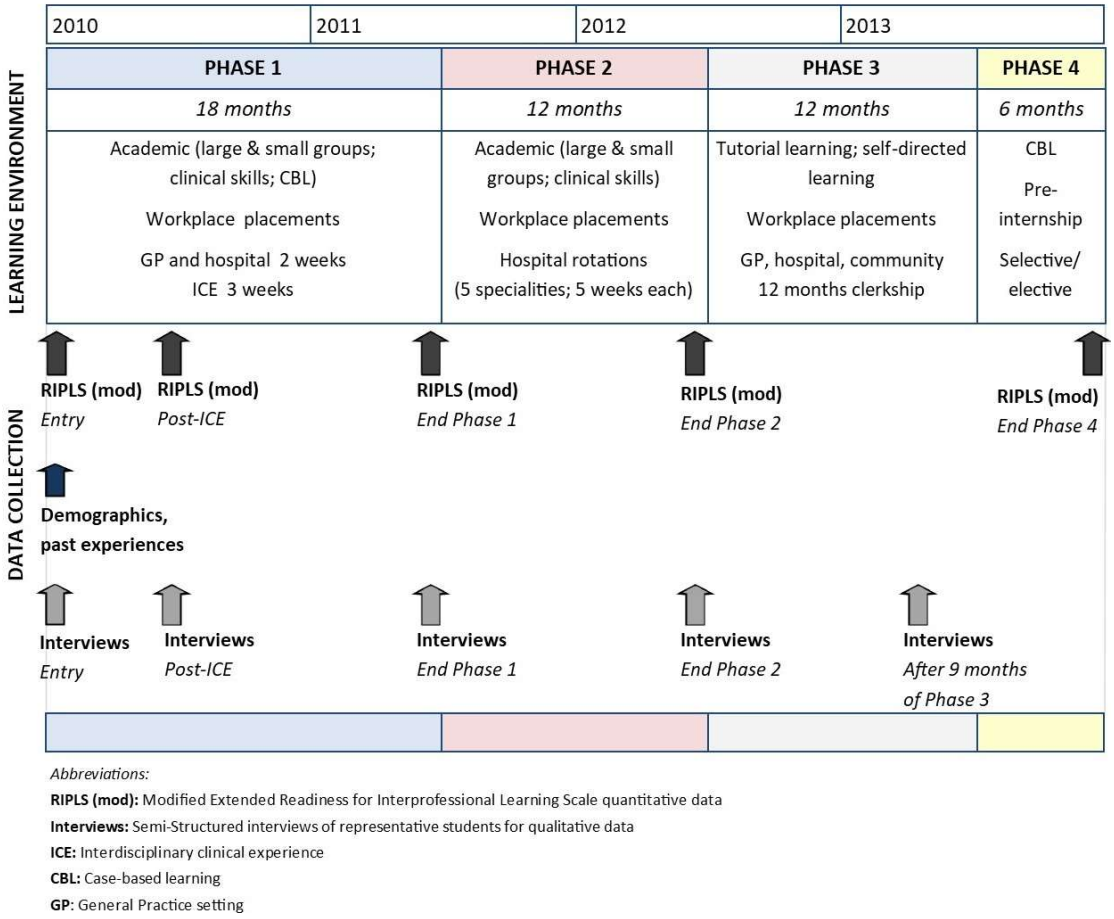
strong partnerships with the community and facilitate people's skills as they developed in their role within the program.

I view myself as multidisciplinary and multi-experienced. I am an experienced nurse and midwife who has been at the coalface of care, and I am an academic who can use my experience to describe settings and issues to students in an authentic way. My past influences have sustained my passion for health education, especially in providing patient-centred care in all healthcare environments. I can empathise with the students' experiences particularly in the hospital environment, which at times can be challenging, sharing my knowledge and experiences with students and can discuss numerous healthcare issues from multiple perspectives.

Summary

A longitudinal mixed methods approach was developed to address the research question to determine how the learning environment can be influential on educating medical students for patient-centred collaborative practice. The longitudinal quantitative data collected at key points in the course combined with qualitative interview data from representative students provided a rigorous exploration of the research question.

Figure 2.4 Combined time points for quantitative and qualitative data collection



Abbreviations:
RIPLS (mod): Modified Extended Readiness for Interprofessional Learning Scale quantitative data
Interviews: Semi-Structured interviews of representative students for qualitative data
ICE: Interdisciplinary clinical experience
CBL: Case-based learning
GP: General Practice setting

This chapter also discussed the methodology, ethical considerations and the rationale for, and the nature of, the quantitative and qualitative methods used. The researcher as an instrument of the research completed this chapter.

The following chapter describes the results from the quantitative data analysis of the modified extended RIPLS, collected on five occasions over the medical degree.

Chapter 3: Readiness for Interprofessional Learning Scale Results

Overview

This study used exploratory mixed methods to investigate factors influencing the attitudes of medical students to educating for patient-centred collaborative practice as their professional identity evolved during the four years of medical education. Chapter 3 presents the quantitative results of the longitudinal study which explored what changes occurred to students' attitudes as they progressed through the medical degree, using a modified extended version of the Readiness for Interprofessional Learning Scale (RIPLS), as outlined in Chapter 2. Following a précis of the medical degree, the following results are reported: firstly, the demographic data of participating students; and secondly the results of the longitudinal changes occurring to each of the three factors which make up the modified extended RIPLS.

Précis of the structure of the medical education degree

The four Phases of the medical degree are summarised again below to facilitate consideration of the longitudinal quantitative results. The proportion of time spent in clinical and theoretical learning environments in each Phase varied as follows:

Phase 1: **University-based** for eighteen months with fortnightly half-day clinical placements, alternatively in general practice and a local hospital. This included a three-week interdisciplinary clinical experience (ICE) at the end of the first semester.

Phase 2 **Hospital-based** for twelve months with students spending four days per week, in each of the seven medical specialty five-week rotations, and one day per week at the university.

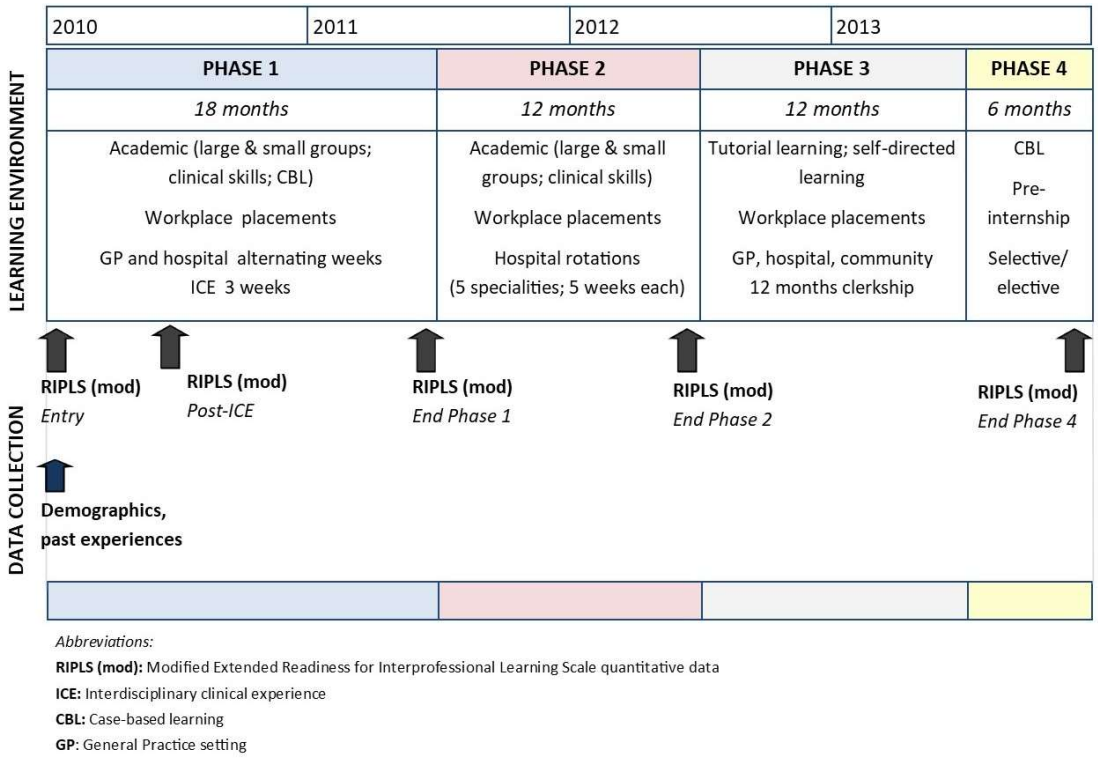
Phase 3 **Longitudinal integrated clerkship placement** in which all students undertook a continuous twelve-month community-based placement in a NSW location. Experiences included concurrent time in the local hospital and primary healthcare practice.

Phase 4 **Pre-internship,** consisting of the following rotations over this six-month phase: a preparation for internship rotation based in one of the local hospitals; and **selective** and **elective** rotations in any national or international location undertaking a general or specialist placement.

Timing of quantitative data collection

A convenience sampling method was employed for the quantitative data collection. All students in one entry year to the Graduate Medicine course were invited to participate in the study. Figure 3.1 illustrates the occasions when the RIPLS was administered, in relation to students' progress through their medical degree.

Figure 3.1 Administration times for RIPLS over four years of medical degree



Abbreviations:
RIPLS (mod): Modified Extended Readiness for Interprofessional Learning Scale quantitative data
ICE: Interdisciplinary clinical experience
CBL: Case-based learning
GP: General Practice setting

Seventy-four students completed the entry and demographic survey; however only 49 students, representing 66% of the student cohort, completed surveys at each of the five time-points.

Participant demographics

Table 3.1 summarises the demographics of the students participating in the RIPLS. There were slightly more females (53%) than males who agreed to participate. The average age of the student sample was 27.4 years, which is 2.5 years above national average age of medical students at entry. Ages ranged from 20 to 44 years, which is similar to national statistics (Medical Schools Outcomes Database National Data Report 2015). The median age range was 20-29 years (Table 3.1) and 81.4% of students in this cohort were in that age range. This medical degree has a graduate-entry requirement which explains the older age compared to the national average age of medical students. Furthermore, a large percentage of the cohort had prior health industry experience and the commencement of a new local medical school may have encouraged a change of career direction in these students. Approximately one-third of students had completed a medical science degree while little more than one-third of students had completed a health-related degree. Less than two percent of students had completed an unrelated non-science degree (Table 3.1).

Table 3.1 Demographics of the participant cohort

Sex		Age range			Area of previous degree				Prior health industry experience	
Male	Female	20-29 Years	30-39 Years	40-49 Years	Allied Health	Medical Science	Science	Non-Science	Yes	No
43.0%	57.0%	81.4%	16.9%	1.7%	34.6%	30.8%	26.9%	7.9%	50.9%	49.1%
n=32	n=42	n=60	n=12	n=2	n=25	n=23	n=20	n=6	n=38	n=36

Longitudinal changes in RIPLS factors

The RIPLS uses a Likert five-level point scale for responses to each statement, as follows: strongly disagree, disagree, neutral, agree and strongly agree. Each level was assigned a score to allow for interpretation: strongly disagree = 1, disagree = 2, neutral = 3, agree = 4, strongly agree = 5. These levels have scores which are arbitrarily assigned; however they are assumed to be equal distance from each other, i.e. the distance between strongly agree and agree is the same as between agree and neutral. A good Likert scale has levels which are equidistant and symmetrical around a mid-point (Norman, 2010). While the scores are an ordinal measurement, when structured as described, the scores approximate an interval measure. This means that median, mode and other statistical calculations can be made and the results can be interpreted.

Statistical analysis of the longitudinal RIPLS data was carried out using SPSS version 22.0 (IBM, New York, USA). General linear modelling was used to provide estimates of the marginal means for the repeated measures of the RIPLS data. The results presented are for the estimated marginal means for the students who completed all five surveys (66% of students). The survey statements loaded to a three-factor model, where factor 1 was labelled **teamwork and collaboration**, factor 2 was labelled **professional identity** and factor 3 was labelled **patient-centredness**.

The Readiness for Interprofessional Learning Scale measures a latent construct, that of attitudes to Readiness, which can be described as *the condition of being ready; willingness* (Macquarie pocket Dictionary, 2010, p.965). The general linear

modelling uses mathematical modelling to establish the contribution of the scale statements to the construct of readiness, which in this study demonstrated that all factors contributed to the aforementioned construct. The multivariate tests reported a significant effect within subjects over time, Wilk's Lambda = 0.544, F (12, 37) = 2.58, p = 0.013. This demonstrated that the different environments had an impact on students' attitudes to interprofessional learning over the length of the medical course.

Univariate tests were used to analyse each individual variable i.e. each factor, to assess the variance over time (Table 3.2). While there were small changes over time for **teamwork and collaboration** and **professional identity,** they were not statistically significant for **teamwork and collaboration** F (4, 192) = 1.36, p = 0.25) and **professional identity** F (4,192) = 1.43, p = 0.23. Univariate tests reported a significant effect within subjects over time for **patient-centredness**, F (2.53, 121) = 3.56, p = 0.022.

Estimated marginal means was used to further scrutinise the data, inspecting each individual factor. Table 3.2 summarises changes over the course in all factors.

Table 3.2 Estimate marginal means for all factors over four years of medical degree

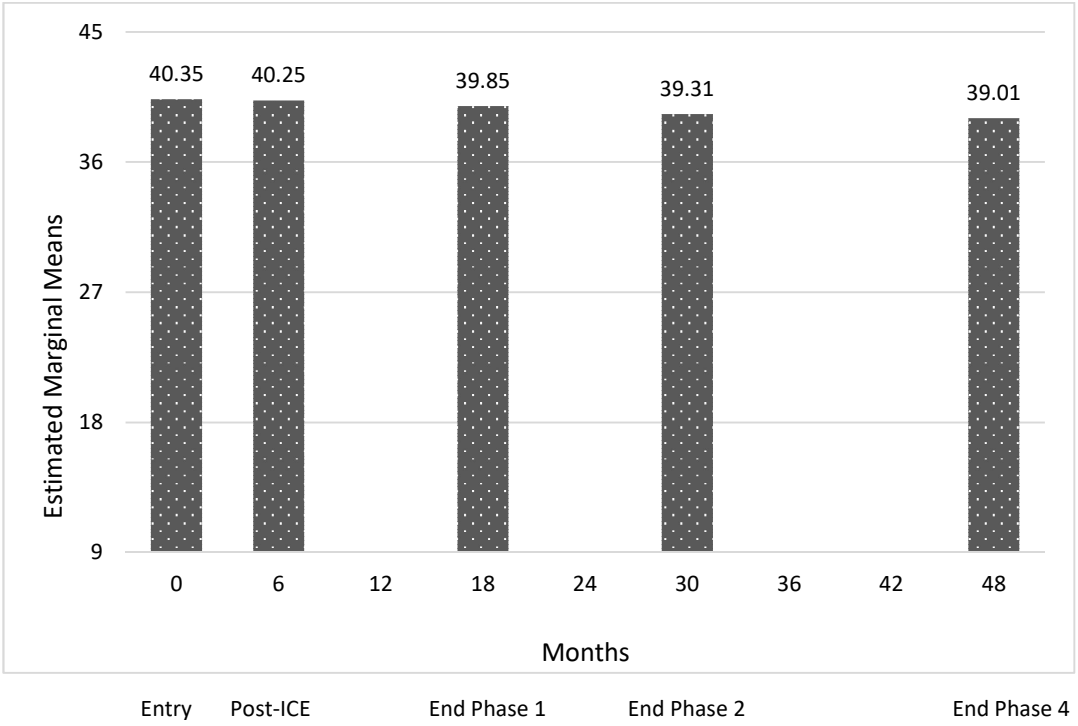
	Entry	**Post ICE**	**End Phase 1**	**End Phase 2**	**End Phase 4**
Months	0	6	18	30	48
	Estimated Marginal Means				
Teamwork and collaboration	40.35	40.25	39.85	39.31	39.01
Professional identity	37.96	37.69	34.41	36.29	36.55
Patient-centredness	23.22	23.49	23.14	22.29	22.79

These results are based on a five-level Likert scale to quantify students' answers to each of the statements in the RIPLS survey. The factors of **teamwork and collaboration** and **professional identity** have nine statements. Using the five-level Likert scale, the minimum total score of **teamwork and collaboration** and **professional identity** for each completed survey is nine (9x1, strongly disagree) and the maximum is 45 (9x5, strongly agree). The **patient-centredness** factor has five statements, resulting in a score range of 5 to 25. Each of the three figures illustrating the estimated marginal mean (Figures 3.2, 3.3 and 3.4) has the *y*-axis scaled to the appropriate range.

Teamwork and collaboration factor

There were small variations in the estimated marginal means for **teamwork and collaboration** over the four years of the medical course, although these variations were not statistically significant. The highest score for **teamwork and collaboration factor** was on entry, with an estimated marginal mean of 40, from a possible 45. This equates to agree, to the teamwork and collaboration statements and is a highly positive view for this factor. The lowest score occurred at the end of the medical course. However, with an estimated marginal mean of 39, this particular score is actually quite high, and suggests good agreement with the statements which constitute the factor of **teamwork and collaboration.**

Figure 3.2 Changes of the estimated marginal means for *teamwork and collaboration* over four years of the medical course



There was no statistically significant change to the repeated measures ANOVA for the **teamwork and collaboration** factor. Even so, t-tests were performed and it would appear that there was a statistical difference ($p < 0.05$) between entry and completion of medical education (Table 3.3). However, this is a spurious result as the ANOVA compares the means of all five times points whereas the t-test only compares the means of the two time points in question. Therefore, the two tests are slightly different. The t-test results are irrelevant when there is no statistical significance result in the ANOVA.

Table 3.3 Statistical analysis of paired sample tests (t-tests) ***for teamwork and collaboration***

Time point comparisons			95% Confidence Interval of the Difference			
	Mean difference	Std. Deviation	Lower	Upper	t	Sig.(2-tailed)
T1 - T2	0.102	4.887	-1.302	1.506	0.146	0.884
T2 - T3	0.3980	5.0583	-1.0550	1.8509	0.551	0.584
T3 - T4	0.5408	3.9513	-0.5941	1.6758	0.958	0.343
T4 - T5	0.327	5.471	-1.245	1.898	0.428	0.678
T1 - T5	1.367	4.517	0.070	2.665	2.119	**0.039**

T1 = Entry, T2 = after interdisciplinary placement at 6 months, T3 = End of Phase 1 (at 18 months)
T4 = End of Phase 2 (hospital rotation, 30 months), T5 = End of course (48 months)

Professional identity factor

There were small variations in the estimated marginal means for the factor **professional identity** which were not statistically significant.

Overall, there was no real change in the professional identity scores over the four years of the medical course (Figure 3.3). These estimated marginal means scores equate to a relative high score approximating to agree for the professional identity factor statements at all of the time points surveyed (Table 3.2).

Figure 3.3 Changes of the estimated marginal means for *professional identity* over four years of the medical course

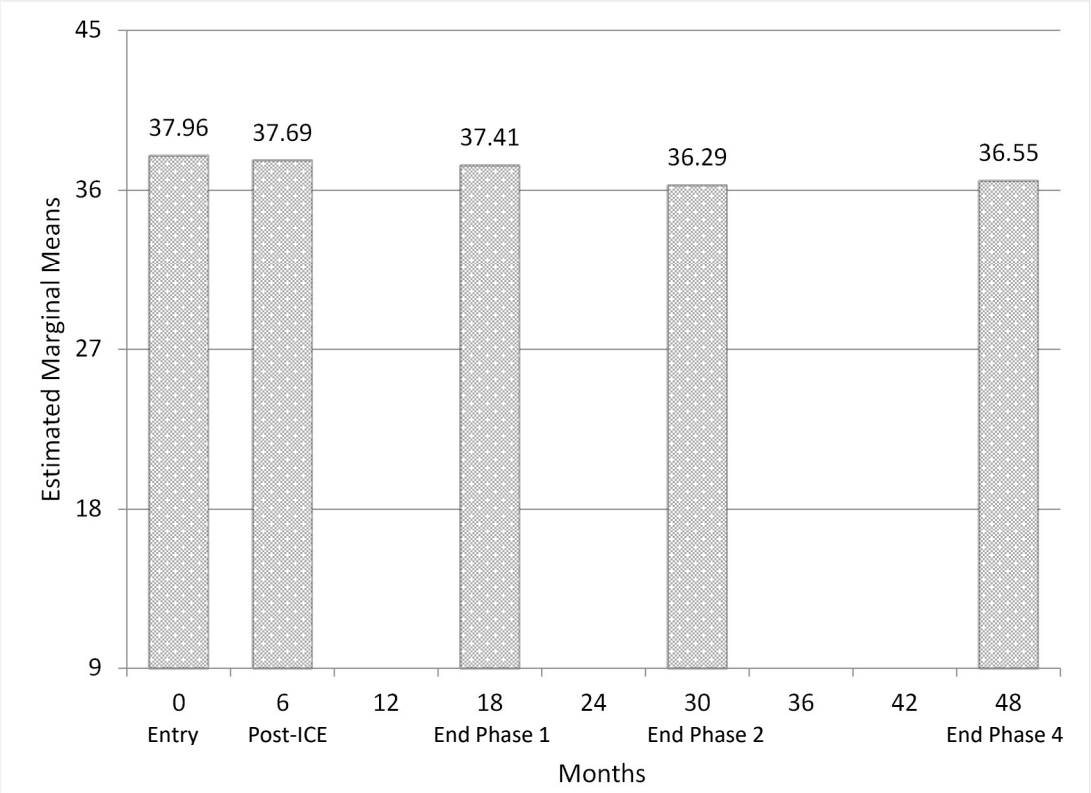


Table 3.4 Statistical analysis of paired sample tests (t-tests) for *professional identity*

Time point comparisons			95% Confidence Interval of the Difference			
	Mean difference	Std. Deviation	Lower	Upper	t	Sig.(2-tailed)
T1 - T2	0.265	5.645	-1.356	1.887	.329	0.744
T2 - T3	.2796	4.8851	-1.1236	1.6827	.401	0.690
T3 - T4	1.1286	5.1496	-.3506	2.6077	1.534	0.132
T4 - T5	-.265	6.919	-2.253	1.722	-.268	0.790
T1 - T5	1.367	4.517	0.070	2.665	2.119	0.135

T1 = Entry, T2 = after interdisciplinary placement at 6 months, T3 = End of Phase 1 (at 18 months)
T4 = End of Phase 2 (hospital rotation, 30 months), T5 = End of course (48 months)

Patient-centredness

Overall, the scores for estimated marginal means demonstrated that students' attitudes to **patient-centredness** were relativity high for the entire medical degree. At a mean of 23 out of a possible 25 (Figure 3.4), the results correspond to a response of strongly agree and demonstrate highly favourable responses to the RIPLS statements for this factor. However, there were some statistically significant changes over the four years demonstrated by the univariate test (F (2.53, 121) = 3.56, $p = 0.022$).

The estimated marginal means for the first three time points are approximately the same at 23, and this result was returned from surveys undertaken during the campus-based education and includes the students' first interdisciplinary placement. Students had also spent considerable time working with simulated patients. Further analysis showed there was a statistically significant decrease in estimated marginal means between the end of Phase 1 (the campus-based education) and the end of Phase 2 (traditional hospital rotations), $p = 0.043$ (Table 3.5). At the completion of the medical degree, the estimated marginal means rose slightly from 22 to 23 but this result was not statistically significant. There was a statistically significant decline in scores between the time points at entry (T1) and completion of the medical course (T5), $p = 0.004$.

Figure 3.4 Changes of the estimated marginal means for *patient-centredness* factor over four years of the medical course

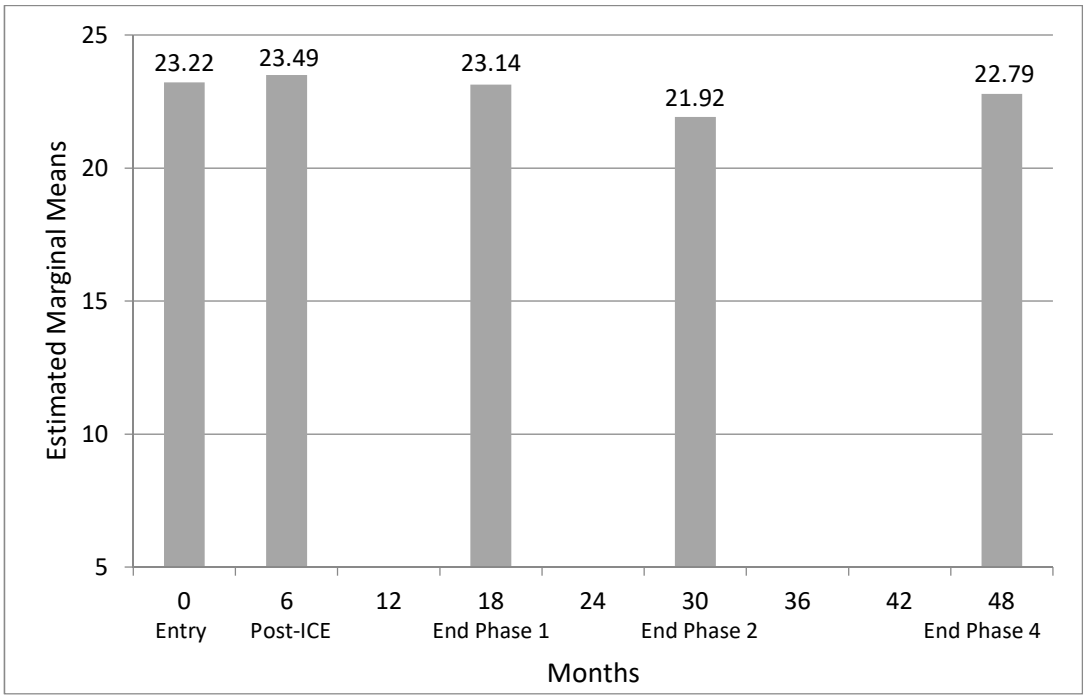


Table 3.5 Statistical analysis of paired sample tests (t-tests) for *patient-centredness*

Time point comparisons			95% Confidence Interval of the Difference			
	Mean difference	Std. Deviation	Lower	Upper	t	Sig.(2-tailed)
T1 - T2	-0.265	2.797	-1.069	0.538	-0.664	0.510
T2 - T3	0.347	2.818	-.462	1.156	0.862	0.393
T3 - T4	**1.224**	**4.124**	**0.040**	**2.409**	**2.078**	**0.043**
T4 - T5	-0.265	5.012	-1.705	1.174	-0.371	0.713
T1 - T5	**1.041**	**2.423**	**0.345**	**1.737**	**3.006**	**0.004**

T1 = Entry, T2 = after interdisciplinary placement at 6 months, T3 = End of Phase 1 (at 18 months)
T4 = End of Phase 2 (hospital rotation, 30 months), T5 = End of course (48 months)

Summary

The average age of the student cohort in this study was slightly above the national average for students at the commencement of medical education. There was a diverse mix of prior degrees in the student sample, and approximately half of the students had health degree-related employment before commencing medical education. The completion rate for the RIPLS collected on five occasions over the four years was 66%, with slightly more than half being female respondents.

General linear modelling was used to interpret the data and provide the estimated marginal means for students who completed all five surveys. The multivariate tests demonstrated that the different environments had an impact on students' attitudes to interprofessional learning and patient-centredness over the length of the medical course. Further analysis using a t-test of paired samples determined that there were statistically significant differences in one of the three factors, namely **patient-centredness**. However, the estimate marginal means were high throughout all of the five occasions at which the RIPLS was administrated. The medical students as a whole commenced with relatively high positive attitudes and these continued with only minor deterioration during the four years of medical education. It is particularly interesting that over the four years of the medical course there was a statistical significant decline in attitudes to patient-centred care, as measure by the modified extended RIPLS.

The following chapter will report on the longitudinal data analysis of the qualitative interviews and will shed light on the possible reasons for the changes reported here.

Chapter 4: Results at entry to the medical degree

Overview

This is the first of four chapters presenting the qualitative results from analysis of the interview data at different time points during the medical degree. Specifically, this chapter reports the results from the entry interviews, with the timing indicated in Figure 4.1. It firstly details the demographics of the interviewees, followed then by an exploration of the themes arising from the interviews after thoughtful reflection, discussion with supervisors and further reflection. The interviews provide a window into students' perspectives and any changes in their attitudes during their undergraduate (pre-registration) medical education.

Figure 4.1 Timing of entry interviews in relation to medical course

Demographics of the interviewees

A purposeful sampling technique was used to recruit students to participate in the longitudinal interviews in this research, using the first RIPLS results. As described in Chapter 2, the researcher was blinded from knowing the individual students' ranked scores, which were coded by an independent administrator. Fifteen students agreed to participate in the interviews. However, two students withdrew their consent just

prior to their interview, with thirteen students participating in all interviews over the four years.

Table 4.1 presents interviewees' pseudonyms, gender and age with Table 4.2 presenting their higher education backgrounds. The latter table shows that six of the thirteen students interviewed had an undergraduate degree in an allied health field. The remaining students had degrees from the general sciences, medical science and non-science. There were slightly more males in the interview sample, and two interviewees were international students.

Table 4.1 Interviewees' pseudonyms, gender and age

Pseudonym	Gender	Age
Miranda	Female	24
Peta	Female	20
Janice	Female	21
Vivien	Female	22
Renee	Female	23
Katie	Female	22

Pseudonym	Gender	Age
Colin	Male	30
Jordan	Male	22
Tim	Male	27
Raj	Male	23
Phillip	Male	21
Roger	Male	23
Roman	Male	21

Table 4.2 Interviewees' first degrees

Previous Degree	Allied Health	Medical Science	General Science	Non-science	Total
Female	4	0	2	1	7
Male	3	2	1	0	6
Total	7	2	3	1	13

Interviewees' backgrounds

Prior to commencing medicine, some of the interviewees had worked in the health area of their degree. However the majority had come straight to the medical program after finishing their first degree. During their previous degree, four of the

thirteen interviewees had been involved in clinical placements, including two students who completed placements with qualified health professionals. All these interviewees reported the experiences as positive and had learnt about other health professions during those placements. Two interviewees who had studied in areas unrelated to health or pure sciences had experiences of growing up with a parent who worked in the healthcare industry, and had worked alongside that parent with involvement increasing as they matured. Their experiences included working with the other staff in the practice, e.g. with a nurse and/or receptionists. These interviewees explained that by observing the staff in the practice, they gained a good understanding of working with others.

Of the students who had previously worked in the area of their first degree, five had worked in a hospital, a community environment or a laboratory. These interviewees expressed a positive view of working with other health professionals from these previous work experiences. Some reported that when doctors had not been respectful of others, they were not respected by that interviewee's professional group and in one such situation the doctor was on the outer of the team. Many of the interviewees discussed past experiences or working in casual jobs as experiences of working in teams. This had provided a positive experience of learning from others and gaining self-confidence. Two interviewees were overseas residents studying in Australia.

Themes

Two main areas were explored during the first interview with these students: firstly, their thoughts, ideas and opinions of learning and working with other health

professionals; and secondly, the elements which may have influenced students' images of a doctor (see Appendix 6a). Analysis of the entry interviews resulted in five main themes, namely:

- Uncertainty where the patient fits in
- The hospital is the doctor's domain
- Ultimate responsible for patient care
- Anticipatory socialisation
- Expectations of medical school.

These themes, with illustrating citations, will be discussed in turn. These are not isolated groupings as students' attitudes and views overlapped in the themes.

Uncertainty where the patient fits in

This theme provided an insight into students' understanding of the place of the patient in the healthcare team and their current views of themselves in the doctor-patient relationship. A variety of views in relation to patients' roles in their own healthcare, and the nature of doctor-patient relationships were expressed. While the discussions focused on the patient being at the centre of care and the importance of that, students spent a significant amount of time describing the patient as an object, on whom things would be done rather than being a partner in care.

> *I would think that I would like this patient to have this done to improve this part of their life or to have this thing improved.*
> Colin (Allied Health)

I guess like overall our joint aim was just to make patients comfortable and to help them get better.
Katie (General Science)

Despite this being prominent, students expressed a spectrum of views about the patient's role in healthcare teams. At one end, several students expressed the patient's role as passive, conveying a paternalist view of the relationship between the doctor and patient.

If the patient doesn't comply with things that doctors have asked them to do, then it is not going to go anywhere.
Roman (Medical Science)

While they are in hospital I think it is obviously you want them to be compliant and stuff and you want to establish a good rapport, but in the healthcare setting I wouldn't consider them part of the team that is meant to make them better.
Phillip (Medical Science)

I would like to see myself as being part of a team and making decisions that I think will basically be in the best interests of the patient.
Colin (Allied Health)

In the middle range, there were students who were unsure of the role of the patient, seeing the patient as contributing to the team but not convinced of the level of activity or participation of the patient. This uncertainty may have arisen from confusion related to a student's prior health profession and their future role as a doctor. Interviewees possibly weighed-up how they worked with patients in their former profession with how much of the decision is expected to be made by a doctor.

The patient has a lot of input… I guess the patient kind of is the centre so... because everybody is dealing with the patient so the patient has a lot of input as to how the team will work. Yes, I guess the patient will be a member of the team.
Roger (Allied Health)

They're the central part of the team I suppose because they should know what is going on and be part of all decision making obviously so definitely.
Vivien (Allied Health)

Interestingly, one of the students expressed uncertainty about the patient's place when in the care of the healthcare team, but acknowledged that they needed to manage their own care when discharged.

Guess like they help with the team, I don't know that they are actually part of the team until maybe you discharge them and they have to like self-manage…
Phillip (Medical Science)

There was only one student who voiced a more patient-centred perspective, acknowledging the importance of the patient's involvement and decision-making in their own care and adding that the family also played a role.

If a patient is involved not only do we see that they are going to get better fast because they actually understand what is happening to them but they can seek our advice and make their own decision as to what they want to do. So, definitely patients and even family.
Renee (Allied Health)

Overall, at entry to the medical degree, many students were uncertain of the role of the patient in their own healthcare. Views ranged from a passive role for patients, especially in the hospital setting where the doctor controls patient care, to those where patients should have some involvement. There was also uncertainty about who should be making decisions for the patient, the doctor or the patient themselves. While at least one student considered that once returned to the community setting, the patient needed to have some independence, most interviewed students focused on hospital care, seemingly unaware of the enormous extent of healthcare provided in the community. These views are strongly linked to the following theme of *the hospital is the doctor's domain*.

The hospital is the doctor's domain

This theme illustrates students' views of the hospital as the doctor's sphere of activity. Students expressed the opinion that there is a hierarchy in the hospital, with the doctor leading the team and other health personnel doing as they are asked. It is noteworthy that students referred to doctors as male, and this will be explored further in the following round of interviews, in a theme labelled *the use of language*. Students considered that doctors are at the top of the hierarchy because of their qualifications and experience as explained by Jordan (Allied Health):

> *Obviously, you would identify the doctor [as leader] because they were in a hospital, they were in **his domain**, his workplace and **he** obviously had the credentials.*

Other health professionals were there to help the doctor with different aspects of care for the patient but their contribution was less important. Moreover, the students indicated that the doctor usually states what is right and others follow:

> *... like the doctor leading and the nurses follow.*
> Janice (General Science)

> *They [nurses] have done a nursing degree they haven't done a medical degree. So they are good at helping with some things but with other things they are not going to be able to provide the answers to.*
> Miranda (Non-Science)

> *...that situation (in hospital care) you would identify the doctor because they were in a hospital, they were in his domain, his workplace and* ***he*** *obviously had the credentials because of where…. Things he has done to get there."*
> Jordan (Allied Health)

Although only having just commenced the medical course, one student with a prior medical science degree, already referred to himself and his student colleagues as *us* being part of the medical fraternity.

> *The more diversity we have, the more physiologists and nurses and people from different fields that are able to like help us out.*
> Phillip (Medical Science)

Other non-work experience gave some students prior knowledge of the inner workings of hospitals and likely influenced their perspectives of the hospital hierarchy. For example, Peta's experience of accompanying one of her health professional parents to the hospital led her to perceive that nurses, rather than doctors, are often the real leaders.

I think quite often I think the doctors are technically looked at as leader of the team but if you go around the hospital often the nurses are the one that actually is. They're the boss of the show.
Peta (Allied Health)

Raj, with a number of years work experience in a hospital environment, shared a similar view. While believing that doctors are responsible for diagnosing the illness and organising the management of care, he declared that a senior nurse may be a substitute for the leadership, but only when the doctor is not available. The senior nurses are the delegate-in-charge.

If the doctors aren't there, then a lot of the times actually the senior nurses like the registered nurses or nurse practitioner are also the leader of the team.
Raj (Allied Health)

...but in diagnosis the [medical] practitioner is the only one that can do that, not everyone can do it.
Raj (Allied Health)

Although nurses may have deputised responsibility, members of allied health were thought to have incomplete or insufficient knowledge to be aware of all that the patient may need for their healthcare. This perspective came from a student who also had prior experience as an allied health professional.

I think that maybe as a doctor… I think you probably have a better picture of the whole of the patient's condition as a whole and therefore you have a better understanding of what they need to be done…I don't know… that a physiotherapist will know that this patient needs to have x y z done.
Colin (Allied Health)

Interestingly, experience in the hospital as a volunteer rather than a health professional didn't seem to reveal an understanding of the hospital culture and the intricacies of the professional hierarchy therein. Kate, a science graduate, who been a hospital volunteer for a nearly a year, wasn't sure how the hierarchy worked.

> *I think that there does need to be some kind of leader. Someone to keep everyone on track individually... I guess like in the hospital setting you can have like a... there is a hierarchy I am not actually sure how it works.*
> Katie (General Science)

However, a number of students were well aware where they would be in the hierarchy when newly qualified. They explained that they would be at the bottom of the hierarchy and would need to *work their way up*.

> *It depends on what role I would be positioned in but assume that if I am just qualified I will be somewhere way down the ladder.*
> Tim (General Science)

> *Everyone has to start somewhere and move your way up the chain I guess.*
> Phillip (Medical Science)

> *At the hospital, because there is always a hierarchy within the hospital system so the consultant would presumably be the leader, but obviously the registrar and interns have a lot to do with the patient as well, I will be in a team of people starting off at the lowest rank……. when I go up further I would have people below me being part of my team.*
> Roman (Medical Science)

In summary, the data informing this theme revealed that on entry to medical school, most students perceived that the hospital was the doctor's domain. Doctors, usually male, are at the top of a prominent hierarchy, and while other health professionals are involved, they are less important. Nurses, seen as good and kind, attentive and spending far more time with the patient, care for the patient. Doctors are healers, they are the leaders with the qualifications and training to diagnose and cure their patients' illnesses. While nurses and other health professionals contribute to care, they are there to assist the doctor in the care of their (the doctor's) patient. As students or junior doctors, students see themselves at the bottom of the hierarchy, but as they gained more experience expected they would be able to move into more senior positions and take on greater responsibility. Some students envisaged their careers in this setting, becoming leaders and gaining the status that they considered the position brings.

Ultimate responsibility for patient care

This third theme continues the discussion about responsibility for patient care from a different perspective, considering the role of the team, but finishing with the earlier idea that ultimately the doctor is responsible. Some students declared that an individual needs to take some responsibility for their actions and decisions. Others considered responsibility to be shared among the members of a healthcare team, seeing themselves as facilitators working with other health professionals.

> *…. So in that sense if a team does well, the whole team gets credit, if someone in the team does something wrong, then the whole team would be perceived negatively.*
> Roger (Medical Science)

I would like to see myself as being part of a team and making decisions with the relevant members of the team who I think… that I think will basically be in the best interests of the patient.

Colin (Allied Health)

I don't know because I think anybody who has to make decisions for the patient, like if it's the nurse, who is involved is responsible.

Vivien (Allied Health)

I mean the nurse and everyone [who] are involved in that patients care so they all have some degree of responsibility but at some point it all goes back to the doctor.

Jordan (Allied Health)

While acknowledging that other health professionals had some responsibility for patient care, many students stated that the doctor as the leader, assumes overall responsibility. Notably, Raj believed it was the doctor who had the greatest responsibility because they have peoples' *lives in their hands.*

They [the patient] see it as a doctor who has all the responsibility because you have got people's lives in your hands.

Raj (Allied Health)

I think usually doctors tend to be the leaders because … they kind of provide that common point of care where they can follow the patient and [they] have that responsibility to the patient and follow up all aspects.

Tim (General Science)

Well I guess someone's got to take responsibility for the patient and I guess that would be the doctors who would take primary responsibility but I mean the nurse and everyone are involved in that patients care so

they all have some degree of responsibility but at some point I guess it all goes back to the doctor.
Phillip (Medical Science)

I think in my past experiences just working on a project definitely having another one or two people works better. Having more involved can be very difficult to manage, difficult to manage with the conflict of all the personalities.
Colin (Allied Health)

All students agreed that teamwork was important but that it could be difficult, particularly with some personalities. Responsibilities were seen as unequal and the team needed to have a leader. Doctors were seen as the natural leaders since students perceived that doctors have a better overall picture of the patient and are responsible for setting the direction and delegation of care. As mentioned above, none of the students, apart from Raj, considered that the patient might have responsibility in their own healthcare. The requirement of the patient in the hospital setting was that they must comply with the doctor's orders, rather than have individual or shared responsibility of their healthcare outcomes.

Anticipatory socialisation

The student interviews revealed a multiplicity of influences from the milieu surrounding our lives. This theme elucidated which influences are powerful in affecting students' beliefs and attitudes about healthcare and thus held on entry to medical school.

Students mentioned their relationships and the influences from a variety of people in their lives. Peta and Miranda revealed that their mothers were dentists, and Peta

would assist in the surgery working with the dental nurses. Phillip, Roman and Raj, all with families overseas, had a parent or close relative who was a doctor. They recalled discussions at home about their parents' work.

> *Well mum's a dentist so I spent a lot of time working with her on weekends... helping her with stuff when she was on call, I would hear a lot of the discussions she had with other staff.*
> Peta (Allied Health)

> *The fact of seeing my family because of their medical background you get to hear a lot of things about how they work together.*
> Raj (Allied Health)

At least one each of Renee, Janice and Vivien's parents were physiotherapists. Renee and Vivien mentioned this influenced their initial choice of professional qualifications but they were swayed to study medicine by the positive experiences of the care their elderly relatives received in hospital. Colin's wife and in-laws were doctors and during interviews, he voiced that he had seen some of the challenges of life as a doctor, firsthand. Jordan was the son of immigrants, encouraged by family to study at University as his parents and relatives were labourers or in a trade. Tim and Katie did not mention their backgrounds except in relation to their previous work experiences. Nevertheless, while many of the students mentioned family, friends and school in relation to understanding the healthcare work environment and teamwork, it was the media which was particularly influential.

Students' descriptions of television news and newspaper reports about health professionals were varied and mostly different to those portrayed in television dramas. While these media formats (TV or newspaper news) reported everyday

events, they also had a tendency to dramatise issues. Many students mentioned that it is the extremes that are most reported in the news media.

> *Like sometimes they [doctors] are portrayed as being wonderful, almost saint-like whereas other ones are the scum of the earth if they do the wrong thing.*
> Janice (General Science)

> *I think in the media, doctors… like really the only times I really hear about them is if they do something extremely good or extremely bad.*
> Renee (Allied Health)

> *I guess the media would jump on anything that is bad but they are also jumping on the good. They kind of miss all the things in between.*
> Jordan (Allied Health)

There were contrasting views about media bias. Some students perceived that news reporting was biased towards negative reports, while another student thought that this form of media was objective.

> *…however the media portrayed a very one sided view to that particular case ['doctor death'] and I think similarly there was another doctor down south New South Wales, a gynaecologist or obstetrician and that was also very negative.*
> Colin (Allied Health)

> *I think the media is quite objective about how they portray doctors. Like the 'doctor death' case, he was obviously in the wrong…*
> Miranda (Non-science)

Television dramas, and sometimes other media, portray doctors and the world of medicine as dominant and authoritarian. They tended to illustrate a version of the life and world within one type of healthcare setting, specifically the doctor's world in the hospital. In medical television dramas, the doctor is the central character, portrayed as all-knowing, powerful and the centre of attention, a seductive message for aspiring doctors. Phillip, a medical science graduate with no work experience in healthcare, made a striking comment revealing the powerful influence the media can have:

> *The doctors are always portrayed as being higher than everyone else…. They're always the people that always get the attention and everyone wants to be like the doctors on TV.*
> Phillip (Medical Science)

Students often denied following TV drama series such as this, dismissing them as of little interest. They stated they may have watched them occasionally and commented on how doctors are represented. However Miranda and Vivien, in the last two quotes, expressed revealing comments on the media:

> *… I guess from what I have seen like it would show doctors in more of a power role."*
> Katie (General Science)

> *"I guess [TV dramas] sort of portray them [nurses] being supports to doctors but that's only a reflection of society's perceptions about nurses.*
> Miranda (Non-science)

I think it definitely would influence a lot of people. I mean from a point of view of somebody you know… a student where you don't really know exactly what it is all about being a doctor unless maybe you have doctors in the family or something, but I don't and I suppose you can't help but let the media influence you.
Vivien (Allied Health)

Television dramas were also seen to portray the medical profession as competitive, and at times depict doctors as uncaring and difficult to work with.

I watch like Grey's Anatomy for example and there have been a couple of episodes, where the doctors have been competing amongst each other.
Katie (General Science)

… there was a particular doctor who was just horrible to his 6th year medical students.
Colin (Allied Health), talking on an ABC show about rural medicine.

Like in 'House' where he [the doctor] is overly rude and not caring.
Roman (Medical Science)

Nurses however are portrayed as the caring accessory, and were often involved in disagreements with doctors.

They [nurses] are always portrayed in that type of media as the sidekick or as the helping hand.
Jordan (Allied Health)
They [nurses] go out of their way to help different patients and it shows up the conflicts between the nurse and the doctor, nurses are caring.
Tim (General Science)

I guess they [nurses] are always portrayed as like an accessory to the doctor.

Roger (Medical Science)

When asked about the portrayal of doctors and other health professionals in the media, students discussed only doctors and nurses. When prompted about the portrayal of allied health in the media, they stated that members of other health professions did not seem to exist.

Strictly portrayed as like the doctor leading and the nurses following. There is not really any of the other healthcare people in the show.

Janice (General Science)

Likewise, teams were almost non-existent in the media.

They (TV dramas) usually portray them with one big group …they seem to… I don't know… they tend to portray sort of the hierarchy in the team of doctors I think. ……. I mean some TV shows and things like that probably focus on disputes within the teams.

Vivien (Allied Health)

All you will hear is mainly about the doctors. So the teams… the teams are basically… they just show that they are there just to help the doctors, they don't actually have a job of their own, it is what the doctor tells them to do.

Raj (Allied Health)

The majority of students when asked about their own experiences of being involved in teamwork were able to discuss at least one situation which involved them as team members. Some students who had previously worked in healthcare articulated a positive attitude to teamwork.

Well, my previous work involved a lot of team work as well. Working for instance involved multi-disciplinary approach with doctors and nurses and all that stuff. So yeah, I have had quite a bit of experience and was quite enjoying it.
Raj (Allied Health)

Well obviously being physios, like we had to do with teams, nursing staff, occupational therapy, social work, dieticians, all the allied health as well as some of the medical staff, most of the time it worked well.
Renee (Allied Health)

Having had some good experiences working with the other healthcare disciplines and… so I have seen how much better the patient care can be working collaborative like that.
Roger (Allied Health)

Other interviewees had participated in teams in a variety of contexts which provided a least some positive exposure of teamwork. Involvement in sport and other experiences raised students' awareness of the importance of teamwork:

… I have always played things like cricket or soccer or rugby where you are always in a team that if part of your team or even one part of your team doesn't function properly the rest suffer so it is really about getting the most out of every part of the team, every member of your team, in order for the team to be successful.
Phillip (Medical Science)

And like when you are mustering [cattle] you are all on different positions around the mob of cattle like so if some cattle break out you can all work together to...So it's important that you as a team [member] stay in your allocate places to keep that mob together.
Miranda (Non-Science)

> *I guess that [a Government sponsored employment program] was a really good collaborative effort because although everyone had their individual role, ultimately everyone needed to work together in order to make everything run smoothly.*
> Katie (General Science)

However, as expected not all experiences are positive:

> *We [part time students] tended to pull most of the load in terms of study component doing the work whereas those who were full time students didn't really definitely contribute as much as they possibly could have.*
> Colin (Allied Health)

All students appreciated the cooperation required to be a useful team member and the value of teamwork in a general sense. They perceived that it was the media which provided specific information on teams within health. The media tended to emphasize the importance of the doctor in healthcare, and that teams were generally teams of doctors. Nurses are involved but as the accessory to the doctor, to do their bidding. There was very limited involvement of anyone else, including the patient. Specifically, television dramas were thought to portray the doctor as powerful, glamorous, and all-knowing. They are above everyone else in hierarchy, can be rude and uncaring, as well as mean to students. It is poignant that a number of students acknowledged that at least some of these attributes reflect society's perceptions, notions that some students expressed themselves shortly after entry to medical school.

Expectations of medical school

At the time of these interviews the medical school employed permanent academic staff from various health related areas of expertise. This included a pharmacist, scientists, nurses, a midwife and clinical psychologists, as well as generalist and specialist doctors. All were involved in planning the curriculum and teaching. Nurses also taught regularly with doctors in clinical skills sessions, at times team-teaching. This theme provides an insight into students' expectations about their medical education. While many students stated they hadn't thought about who may be involved in lectures and tutoring, they did voice their assumptions.

> *I thought I would probably learn from ex-doctors who are now full time lecturers, I didn't really think too much about that actually.*
> Jordan (Allied Health)

> *I just assumed that you go to uni to study medicine you would be taught mainly by doctors or people who were doctors in a previous life and now doing full academic work.*
> Colin (Allied Health)

Even at this early in the program (at 8-9 weeks) students were surprised about the level of involvement of other healthcare professionals in addition to doctors, within the curriculum.

> *I assumed that through the hospital we would be interacting with the nursing staff and that type of thing, I didn't realise the involvement here [nurses in teaching in the medical degree]. I have been able to learn from both doctors and the nurses which isn't something that I expected.*
> Katie (General Science)

I wasn't expecting it before I came in but because there are some many people from different backgrounds, like physios and nurses and pharmacists, it really helped me. I was genuinely surprised.
Roman (Medical Science)

I was expecting the lecturers to be both lecturers from the university or specialists or professors. Um… yeah I wasn't expecting any lecturers from the school of nursing or something.
Roger (Allied Health)
I didn't think we would have nurses and other professionals teaching, not during the medical school, but I think definitely afterwards like in the hospital.
Miranda (Non-science)

Some students indicated that at this early stage of training, they could learn from anyone with healthcare experience, despite their professional background as stated firstly by Peta (Allied Health) and secondly by Roger (Allied Health):

I mean I think we learn just as much, especially at this stage, from anyone who knows what is going on, no matter what their official training is.

A lot of things that I think we will be doing in the first years [after] *graduation ... will involve things that nurses do, things like venepuncture and catheter insertion. I believe that they* [nurses] *can teach you a lot of things.*

Interestingly, a student had observed a different approach to patients made by a peer. This student was a nurse, who had prior experience of working in a hospital.

> *I have found like … a student in our year that is a nurse, is particularly good at being more attentive to the patient and treats them as a real person rather than a problem when we are doing clinical skills.*
> Phillip (Medical Science)

Overall, students thought that lectures would be conducted mainly by medical doctors or semi-retired doctors, but acknowledged they had learned from other professionals too.

Summary of results

While there were variations in perspectives, students portrayed an idealised role for doctors in Western culture. The entry interviews brought to light the powerful influence not only of the media such as television dramas but also of family and other sources which had shaped students' views prior to beginning their medical education. Whether due to anticipatory socialisation or the lack of other health professional portrayal in the media, many students perceived that members of other healthcare professions were not suitability qualified to be leaders in a healthcare team due to incomplete or insufficient knowledge. Their role was to help the doctor with different aspects of care for the patient.

Patients in general were described by students as objects of care. Most considered patients should comply with the decisions made for them by the doctor. It was suggested that, only on discharge into the community, that patients may be more involved in their care.

When educating medical students for patient-centred collaborative practice, educators need to consider the influence of students' opinions, attitudes and values of doctors and other health professionals, and how they may envisage themselves as doctors, on entry to medical school.

The themes from Chapter 4 are summarised in Table 4.3

Table 4.3 Summary of entry themes

Players and the setting	**Themes**
The patient	Uncertainty where the patient fits in
Doctors	The hospital is the doctor's domain
Health Professionals	Ultimate responsibility for patient care
Students	Anticipatory socialisation
The learning environment	Expectations of medical school

Chapter 5: Results during and following the Phase 1 campus-based program

The previous chapter detailed the results from students' interviews completed shortly after they commenced medical training. The themes revealed the impact of prior life events and experiences, as well as the influence of the media, on how students anticipated and pictured their future role as doctors. Chapter 5 explores how these ideas may or may not have changed during Phase 1, the mostly campus-based phase of the medical degree. This chapter is organised in two sections based on analysis of the transcripts from two interviews conducted at the following time points: firstly, after the students' first experiences of an interdisciplinary placement (the ICE placement), six months into the program; and secondly after the end of campus-based education at eighteen months.

Results following the interdisciplinary clinical experience

The interdisciplinary clinical experience (ICE) comprised three full consecutive weeks in a placement encompassing one of a variety of chronic care healthcare teams, supervised by non-medical clinicians. ICE occurred six months into year 1, at the end of the first semester. The interview with each student was about five weeks later, early in the following semester (Figure 5.1).

Figure 5.1 Timing of interviews after Interdisciplinary Clinical Experience (ICE) in relation to medical course

The questions in the semi-structured interviews are provided in Appendix 6b. The six themes which emerged from the analysis of these interviews were:

- Recognising the patient in the context of their lives
- The reality of the doctor's world
- Growing appreciation of other health professionals
- The use of language
- The challenge of integrating into the team
- Organisation of placements.

Themes

These themes suggest that the interdisciplinary clinical placements challenged students' perspective of the role of doctors in the real world of healthcare. Each will be presented in turn, with supporting student quotes.

Recognising the patient in the context of their lives

Students demonstrated an increasing awareness of the importance of family and friends in patients' lives. There was greater use of words such as family members,

wives, husbands, and partners, with these people frequently being referred to as important, in conjunction with discussions about the patient.

> *The home visits were really just awareness that the patient is not just what is in front of you it's the whole home life and everything as well.*
> Janice (General Science)

> *And they're all very valid concerns and you just think, ok well it's good to hear from the patient's perspective and how it affects their family as well because some of the partners were there as well.*
> Vivien (Allied Health)

> *I mean when you are working in an environment like that you see that it is not just about saving the patients, it is about other things as well. What you are doing as whole, it is about how you take care of them as well as the family members around.*
> Raj (Allied Health)

> *That sort of just giving you a perspective on what people experience when they're sick and after they have major surgery and the effect on their family.*
> Miranda (Non-science)

The reality of the doctor's world

Students faced the reality that during the interdisciplinary placements health professionals were busy and focused on patient care. Student learning was secondary to patient care. Furthermore, not all the students appreciated that they were meant to

be learning about interdisciplinary teams and their impact on patient care. The following student quotes illustrate some student perceptions of team meetings, with comments on doctor domination and communication:

> *They did [a case conference] but the doctors didn't come. I think they should have been coming, I don't know why they weren't.*
> Vivien (Allied Health)

> *Some of the other meetings we went to when the doctors were there, they tended to take over. So it was the doctors giving a run down on each patient and I don't think there was as much conversation between the other people who are also quite important.*
> Peta (Allied Health)

> *I think mainly the meetings were for when they [nurses] have particular concerns about you know one particular patient. So it was kind of a way for them to get advice from their colleagues ... But when the doctor was there it was a bit different, you know, there wasn't a lot of discussion more like… direction… delegating what the patient needed.*
> Janice (General Science)

Many students observed team meetings and some were disappointed that the doctors did not attend. The reality of the meetings when doctors did attend was that discussion was dominated by the doctors. When the doctor was not available to get students involved in patient care, not all students looked to others within the team for guidance.

A lot of the time Dr. R would have to go off and do things like I would be left in a couple of hours in the first couple of days not knowing where I am meant to be or what I was meant to be doing.

Phillip (Medical Science)

On Thursdays we had a day off because it wasn't serviced by a doctor but then the other times, like the half a days that we only had a doctor like for half a day then we went with other disciplinarians [health professionals].

Vivien (Allied Health)

He [Rehabilitation Dr] actually manages the rehab (unit) and everything and he is actually quite busy but a lot of time when he was showing me around he was quite good but I felt like it was a bit of an inconvenience for him ...

Phillip (Medical Science)

These placements were intended to be an interdisciplinary experience. However, the transcripts of interviews revealed that some students looked to the doctor for supervision and viewed the doctor as portrayed by the media - the hero who saves patients' lives and a leader, respected for expertise and knowledge. Students used words such as 'brilliant', 'cool' and 'awesome'.

The doctors were really cool towards us. There were a couple of cool surgeons. & loved ward rounds. That was awesome.

Miranda (Non-science)

Dr. John by far was our most favourite-st person and um he literally went out of his way to be a teacher and it was just brilliant.
Vivien (Allied Health)

Interesting, students became aware that when they expressed interest in learning with other health professionals, these professionals were willing and able to provide learning opportunities for medical students.

We said, no call us, we want to see as much as we can. So them [the nurses] knowing that we were interested I think was big. Especially one of the nurses, she did a course in everything and she said anything she was on we could go.
Jordan (Allied Health)

Growing appreciation of other health professionals

While the previous theme demonstrated how students valued the doctors, there was an increasing recognition of the considerable role of nurses, dieticians, speech pathologists and other health professionals in patient care, and their ability to take responsibility for that care. Furthermore, students appear to be starting to understand that important aspects of care would be missed if the appropriate health professionals were not included. Significantly, this first recognition by students of the importance of other health professionals' involvement in patient care occurred shortly after an interdisciplinary placement. The following quotes provide evidence of positive student attitudes to learning with other health professionals.

Umm, I suppose I see them [other health professionals] as more of a valued resource than I did. Like the areas that they do the doctors didn't even know that area and I used to think

that doctors would know all of the areas and just delegate to make their job easier rather than delegate because they actually don't know.
Janice (General Science)

At the time we just thought it wasted time being there but the bottom line was that what they were doing or what their role is, [and this] is important.
Roger (Medical Science)

... but it's kind of allowed me to see a window into a pretty important aspect of medicine that's kind of not always thought of, just kind of in the background. I have a bit more respect and understanding about what goes on ...
Tim (General Science)

It was the rehabilitation team that we were working with because we were on the Rehab Ward so all the nurses, physios and speech therapists; they all worked in the same area so we could go with whoever we liked and they were really willing to stop and explain things if we needed to.
Peta (Allied Health)

Yeah, Jenny [Nurse] especially because she was my main supervisor gave 110%. ... I told her I'd never seen a stress test so she arranged with Dr Harold [Specialist Dr], so I could attend one of the patient's stress test, which I did.
Colin (Allied Health)

Some students noted that at times in the work environment there was an overlap of skills, and at times health professionals needed to work outside their professional boundaries:

> *You know 2 or 3 patients um... the nurses there have a ... their role is much more like an intern and they have to do a lot more and they knew heap[s]. They taught us heaps of stuff. Yeah.*
> Jordan (Allied Health)

> *I didn't actually pick up in her [Clinical nurse consultant] at the time but I've since found that she didn't just go down the one track for a diagnosis, she was constantly reframing what the diagnosis could be, which I thought was really good after finding out that was a good thing to do.*
> Peta (Allied Health)

The use of language

During these post-ICE interviews, students identified a greater variety of health professionals by their specialty names and with greater frequency than in the entry interviews. Examples include health professionals such as dieticians, speech therapists, community workers, physiotherapists, *ambos* (ambulance paramedics), psychologists, exercise physiologists; as well as referring to family members and partners when discussing the patient and their care. It is possible that this first immersion in the clinical environment has contributed to students' growing recognition of these professionals in the patient-care team.

> *Well I heard of the terms occupational therapist, dieticians and speech pathologists but I had no idea what they did and I didn't realise a psychologist had such an integral role in the*

hospital. I didn't realise that they would sort of combine themselves to ensure the patient is followed properly. Or combinations that I didn't think happened.
Janice (General Science)

Interestingly, the language used by students to describe people, is part of the story, demonstrating societal norms. Doctors were invariably referred to as *he* and female health professionals were referred to as *the girls* or *lady*, not women or by their profession.

That was... we went out with the community ladies [Registered nurses] a couple of times.
Jordan (Allied Health)

Maybe not all of them were but there were quite a few ladies [Registered nurses, physiotherapist] there that I got along with really well and they were really interested in what I was doing and yeah.
Renee (Allied Health)

Like I really liked hanging out with the girls on ward rounds and you got to talk to a handful of patients on a regular basis and follow their progress.
Phillip (Medical Science)

The pathology lady invited me back to come and told me to come and help any morning I liked and come and take bloods with her.
Tim (General Science)

The challenge of integrating into the team

This theme particularly highlights one of the challenges students faced during the interdisciplinary clinical experience placement. Many students found that some health professionals were not as welcoming as they would have liked, particularly if the health professional was busy, forgot the student was coming or perhaps didn't understand the level of students' learning. Many students found it difficult to integrate into the team to which they were assigned.

> *Yeah because we couldn't really help and they didn't want us to help so we were just an appendage.*
> Katie (General Science)

> *Yeah, sometimes I just felt like it was just a waste of time going there.*
> Roger (Medical Science)

> *Yeah, we just followed them around; I think I was definitely an add-on to the team rather than an actual vital part of it. I guess that sense of being on the periphery ….*
> Janice (General Science)

> *It was just... don't think the people we had were prepared for us.*
> Jordan (Allied Health)

> *And sometimes while at the community health, it was sort of like the nurses didn't really want us there, we were a bit of a pest… we were just watching and felt in the way.*
> Miranda (Non-science)

Students were often observers, particularly in the hospital. However, those students who took the initiative, were enthusiastic and open, and felt more involved. This occurred more in smaller or isolated units, or where students reported a very strong teamwork ethos.

> *Yeah, there was team meeting when we got there about palliative care, but it was a palliative care group involving doctors and nurses and we went to the meeting ... but then I started to ask questions and they started to include us.*
> Miranda (Non-science)

> *Like from the outset showing we were interested, showing that we want to do things that we we're keen ... If you don't include yourself into what their jobs is, which is actually treating people, then they can't, they don't feel they can include you in the team.*
> Jordan (Allied Health)

Some students reported that taking the role of *the student*, observing, learning and helping when asked, assisted their integration into the team as described in the first two quotes from Colin and Raj. In contrast, others thought that to be part of the team, they needed to be contributing to patient care as reported by Phillip and Katie.

> *I most certainly knew that I was a student and I think that was just my understanding that I was a student and I was there to simply observe and learn.*
> Colin (Allied Health)

> *As a student I had my own role, like everyone else does. My role was to go and learn and that's what I did.*
> Raj (Allied Health)

I don't know that you feel you are part of the team in an environment like that because a lot of them are ... they are all contributing something towards the patients care. Like we're just kind of looking or being asked and answering questions.
Phillip (Medical Science)

So yeah, it was really nice to feel like I, even though it was minor contributions, I felt like people wanted me to be around and wanted to help me learn and also hear what I thought.
Katie (General Science)

There were two students for whom being excluded was disappointing and as medical students they thought that they should have been involved. There may be a number of reasons why this occurred. It may be that students were expressing their frustration as they really wanted to be included, or perhaps voicing a sense of entitlement. Alternatively, some nurses may have preferred not to have medical students and put up a barrier to student involvement or thought they were protecting the patient.

When I started the nurse specifically said you will not be allowed to do anything, which I guess is fair enough but I could have helped her a little bit, just little stuff but I could have helped.
Miranda (Non-science)

... but as a medical student and as a professional l think it would be better for me to be able to observe it [a clinical procedure] because I've never seen it and frankly it would have been a good learning experience.
Roman (Medical Science)

Organisation of placements

Related to the previous theme, the challenge of student integration into the healthcare teams depended on how the placement was organised. This either facilitated or was a barrier to the quality of the student's interdisciplinary experiences.

While placements organisations were asked to provide a longitudinal interdisciplinary experience supervised by one team member, some offered a more disjointed placement. The latter involved observations of a range of health professionals but the students were never with any one team member for sufficient amount of time to gain an appreciation of team care.

> *There was no interaction, we just followed this person around and we only had them for one day so there was no ... there was no like time to develop a relationship with them for 6 hours. The next day we are with someone else.*
> Roger (Allied Health)

> *Like we were sort of divided into like afternoon and morning blocks so heaps of different things like we would go out to Community Health in the morning and go to surgery and then do the ward rounds every Friday morning .... I didn't learn anything about patient care.*
> Miranda (Non-science)

For these students their placements provided limited opportunities to complete the placement objectives particularly the first objective which was to gain an understanding of the roles and responsibilities of other health professionals. However, at some sites the facilitator assigned students to one or more patients, who they followed through the weeks of the placements. Those students undertaking this arrangement gained a diverse and very rich experience. Students were involved in all aspects of care and saw the variety of people connected to that care - health professionals, patients and volunteers, and this opened their eyes to the complexity and humanity of healthcare.

> *… like getting to see all the different professions and how they interact. We each got a patient to follow and just seeing how each of them [various health professionals] worked, we followed him [patient] around and saw how they deal with him … Like the areas that they do [various other health professionals] that doctors didn't even know that area.*
> Janice (General Science)

> *We were assigned a patient each… it was not mainly the patient's condition it was mainly just a perspective of how they are living with the future … it is about other things as well. What you are doing as whole, it is about how you take care of them [the patient] as well as the family members…….we hung out with the volunteers as well. That was pretty good as well to see people who are working there for no reason; just for the sake of I guess humanity.*
> Raj (Allied Health)

The location of the placement also had an impact on students' experiences. In small isolated areas such as the outer regional areas (urban centre population 10,000–

24,999), students became closely involved in working with a small group of the healthcare professionals.

> *Everything was different and again working with the same core of nurses for the whole week. By the end of the first few days they started taking us in with them [to see patients]. We did some home visits, done some [visits] like went out with the occupational therapist to do some sessions at the house….*
> Jordan (Allied Health)

> *Yeah, we were really lucky that we worked with a really good group … they seemed very interested in getting to know a little bit more about me and were really good about finding when there were consultations and stuff … we followed our patient around and making sure I could sit in and that type of thing.*
> Katie (General Science)

Summary of results

The majority of students interviewed stated they had learnt more about the clinical environment and increased their knowledge about the skills and variety of health professionals involved in patient care as a result of this clinical placement. Students' statements revealed their growing awareness of the positive contribution of other health professionals to patient care. Health professionals such as dieticians, physiotherapists and others were recognised as having a different sphere of knowledge to doctors. This contributed to students' growing respect for the abilities and skills of other health professionals, as well as the reality that doctors actually do have limited knowledge or expertise in some areas of healthcare.

Students were cognisant that the clinical environment would differ from their impression of television dramas, and that the reality was very different: people were very busy; doctors did not always show up when expected; communication was not always ideal; and sometimes doctors took over in team meetings. While students were placed in healthcare teams, becoming actually involved in the team had mixed challenges and outcomes. The success of early interdisciplinary placements was demonstrated when students were assigned to patients rather than health professionals. Those students who followed patients during treatments provided by various healthcare professionals appeared to viewed healthcare through the eyes of the patient. In these situations, students gained valuable authentic experiences of patient-centred care. The themes emerging from this round of interviews are summarised in Table 5.1 below.

Table 5.1 Summary of themes post ICE.

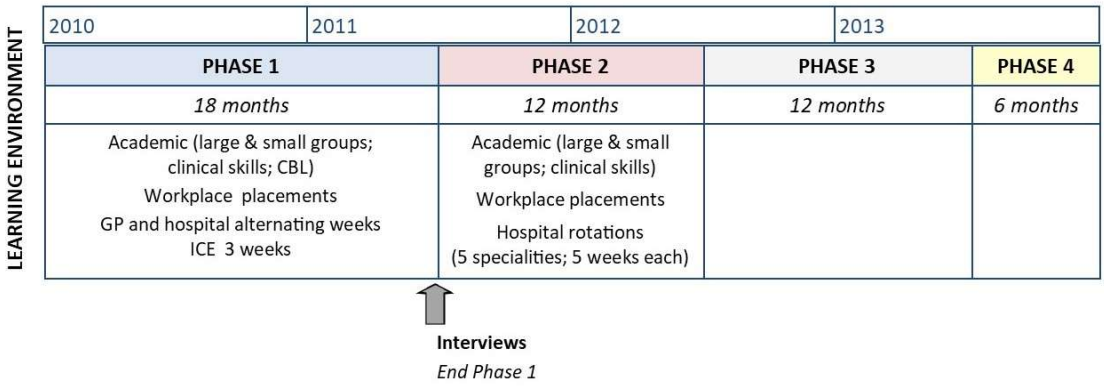
Players and the setting	Themes
The patient	Recognising the patient in the context of their lives
Doctors	The reality of the doctor's world
Health professionals	Growing appreciation of other health professional The use of language
Students	The challenge of integrating into the team
The learning environment	Organisation of placements

The next section continues the story of students' perceptions of their medical education focusing on their experiences in the first eighteen-months of the medical degree which was based at the university.

Results on completion of campus-based education

Student perspectives from the interviews reported in the previous section illustrated how they viewed the complex and sometimes challenging clinical environment that they experienced during their interdisciplinary placement in first year.

Figure 5.2 Timing of end of campus-based program interviews in relation to medical course



This section presents the qualitative results that emerged from interviews that focused on the learning environment of the medical school, as experienced by the students during Phase 1. Students were asked about:

- The educational climate of the medical school;
- Awareness of any collaboration within the school; and finally
- A reflective question about changes which occurred in the RIPLS data between entry and after 'ICE' placement.

See Appendix 6c for the Interview Question Guide.

The core medical degree is driven by case-based learning. During the campus-based program (Phase 1), case-based learning is supported by didactic lectures and various group learning activities such as small group tutorials, anatomy sessions and weekly

and clinical skills sessions. A significant number of the two-hour clinical skills sessions included simulated patients from the medical school's simulated patient program. Simulated patients are men and women with a diversity of life situations, careers, ages and ethnic backgrounds from the local community. They provide students with opportunities to learn and practice appropriate communication and physical examinations on real people from the local community. Simulated patients are also trained to provide constructive feedback immediately after students have completed their patient interaction (Appendix 7, Overview of simulated patient program). These skill-developing activities allow students to first develop competence and confidence working with stimulated patients, before they learn from working with real patients during clinical placements.

During the campus-based program, students are also involved in half-day clinical placements alternating each fortnight between the local hospital and a GP practice, resulting in an approximate total of 120 hours of clinical experience. This is in addition to the three weeks of interdisciplinary clinical experience as discussed in the previous section of this chapter. Students were interviewed after successfully completing Phase 1 examinations and the mid-year end of semester vacation break. Analysis of these interviews resulted in four main themes. These themes were labelled:

- The key role of simulated patients
- Teamwork: learning from different perspective
- Medical school culture: a model for student values
- Belonging in a supportive learning community

Themes

The key role of simulated patients

The stimulated patients provided the connection between learning at the university and the reality of the community. Working with simulated patients was recognised as an important part of students' learning and contributed to a safe student learning environment. The involvement and treatment of simulated patients demonstrated a core value of the school, namely acknowledging and valuing patients' knowledge as well as respect for the patient and their beliefs. However, the last quote illustrates that initially, some students were unsure of simulated patients' teaching role.

> *It basically brings the school into the local community. I suppose that's one aspect of the patient volunteers [simulated patients]. It helps build up the reputation of the school.*
> Colin (Allied Health)

> *It's huge [simulated patients' contribution]. Just getting to speak with patients in a safe environment where they knew more about what was happening than you did and being able to get that feedback from them like 'This is what you did really well and this is an area you want to work on' – things you wouldn't recognise yourself and even your peer[s] wouldn't recognise because they don't have enough experience as well.*
> Katie (General Science)

> *I think that they're an excellent opportunity to practice our skills in a good, caring environment that's non-threatening; to really help us practice our skills before we go out there. They provide great feedback*

on manner and often they're extremely practiced at the actual clinical side as well. Tim (General Science)

I don't particularly [think the simulated patients are teaching us]… not really but then when I think about it … well they are because they give us feedback so that's teaching.
Miranda (Non-science)

Teamwork: learning from different perspectives

During the campus-based program, the medical students experienced numerous team teaching encounters. Team teaching occurred where more than one tutor worked in unison to provide the content of the education session. This regularly occurred during the introduction of each fortnightly case on which the program is based, but also on occasions during clinical skills and anatomy sessions. These sessions may include a doctor and scientist, anatomist and clinician, or GP and allied health or nursing professionals working together. Overall, the responses when asked about team teaching were positive, although being presented with different views was considered confusing at times. Students learned from both positive and negative role models. Most found it useful to see the different perspectives presented by the individual tutor, on a particular topic or area.

Yes, sometimes in skills [meaning the clinical skills sessions] it was a bit confusing because one would say "Tap the knee this way" and the other would say "Do it this way" but overall it was quite good I think to have the different opinions.
Miranda (Non-science)

I think that was good seeing the different perspectives and also the broader inter-health professional relationships. I think that was valuable interaction.
Tim (General Science)

It was good to get different points of view especially because the clinicians were able to give a good clinical focus to it and the anatomy lecturer was able to give you more of an anatomical, very scientific, straight-down-the line sort of perspective.
Colin (Allied Health)

I think it's really good to see different views especially in team teaching when they're from different backgrounds, it's very, very interesting to see exactly what importance each person puts on what thing.
Vivien (Allied Health)

Students reported observing occasional disagreements, as well as examples of both positive and negative role modelling. When disagreements occurred students stated that generally these were resolved positively, demonstrating co-operative negotiation between the professionals.

Like Dr J [GP] would say that… we would pretty much see this patient up till this point and then we would refer on to a physiotherapist and then we saw what the physios did – it was actually quite smooth.
Vivien (Allied Health)

It was good that Dr P (GP) could hand over [to the physiotherapist] and say "They are the experts in this field" and let them do it.
Miranda (Non-science)

The doctor spent ages going through everything and just used the physios as models rather than the patient volunteers; we were all

getting pretty annoyed, the patient volunteers didn't get touched….the physios didn't actually get to say anything because he was taking so long to describe everything.
Janice (General Science)

Some students recognised the value of being a team player, and that learning together had important benefits for patients.

A lot of it is team work [learning in groups], which is really good; just the importance of being able to work together, a team player to solve a problem because so much of medicine is working as part of a team ….
Katie (General Science)

Yes, [the team teaching demonstrated] how you can use your peers or other healthcare professionals to help you better manage a patient.
Raj (Allied Health)

Medical school culture: a model for student values

As discussed previously, respect for the wider community and people in general was role-modelled effectively by the medical school staff. This is exemplified by the manner in which the school treated their volunteers, the simulated patients and students. The positive school atmosphere enabled students to understand which important values the school considered that students should acquire in their journey to becoming a professional. Many students commented on the schools' emphasis on the *science of medicine* that is, the importance of being able to base future practice on statistics and evidence.

I think they're certainly trying to make well-rounded doctors … we're practicing evidence-based medicine so you have to be able to at least read into stats.
Phillip (Medical Science)

…. I suppose an evidence-based good doctor rather than just… being more than enough I suppose that seems to be a key thing. The school encourages you to extend yourself.
Janice (General Science)

Other students illustrated the schools' emphasis on the importance of the *art of medicine*, being respectful, caring practitioners as well as a team player.

One of the values it's creating is respect for the community, respect for your professionals, for your colleagues and others.
Vivien (Allied Health)

We were not only respecting them [the physiotherapists] and thanking them for coming and spending time with us, we were learning their trade as well….
Raj (Allied Health)

Definitely collaborative learning; that seems to be a key. They [medical school] strongly encouraged working in groups from the word "go", which is really good; just the importance of being able to work together, in medicine you also need to work as part of a team ….
Janice (General Science)

Overall, students gained an understanding of the values which the medical school espoused.

Belonging in a supportive learning community

Most but not all of the students alluded to the Graduate School of Medicine, now called Graduate Medicine (GM) providing a sense of community in which they felt they belonged.

> *I do have a sense of belonging; in no way do I feel excluded or isolated. I think that's the general consensus amongst my group of friends think; we fit –it's [the medical school] very supportive.*
> Vivien (Allied Health)

> *At first, I guess I didn't really want any association with this med school; I was happy to do my program and get out. Now I actually find that I feel that I quite belong here. .... I guess I've just made some good friends here and it's a good environment and everyone sort of looks after each other.*
> Miranda (Non-science)

The students' comments attributed the positive learning environment to the fact it was a small medical school, but also to the involvement of staff in social and sporting events. Other contributing factors were the approach of staff to students and their learning, talking to students by name in the corridors, and encouraging group learning.

> *The GSM [medical school] is quite a little community on its own……the teachers know you, they're also more likely to recognise if you're struggling or something like that.*
> Renee (Allied Health)

> *I'd say if we're in trouble there's always someone to go to or if we feel uncomfortable or if there are any problems at all there's always the*

sub-Dean and the person to talk to. I feel comfortable – there's a good support in the GSM.
Roman (Medical Science)

The staff actually knows who's who; they care; they notice what's happening I think. I think the university encourages us to work together, they end up with a very different atmosphere from say [previous university] where they rank the students constantly… there they sort of make a point of encouraging people not to work collaboratively.
Peta (Allied Health)

While not all the interviewed students stated that the medical school was a community, all students did comment about various factors which contributed to their view that medical school had a supportive atmosphere with attentive approachable staff, who generously provided time for students as needed. The caring nature and impact of staff knowing students by name was a particular attribute that was highlighted.

They all know every student's name and can talk to you on a personal basis beforehand. It's good knowing that you have that support and you're not just another student; it's like you're part of the GSM [medical school].
Roman (Medical Science)

The model of learning created by the school also included development of partnerships with the wider community, not only with specialists and the medical profession but all stakeholders within the community. Students believed the learning community was inclusive of a wide range of stakeholders.

The program itself relies so heavily on the support of hospital clinicians and GPs in the community as well as those coming in to do for example our CBLs [case-based learning group sessions].
Katie (General Science)

It basically brings the school into the community … that's one aspect of the patient volunteers [simulated patients].
Tim (General Science)

I think there are so many other contributing factors in a teaching environment – as I said, the GSM [medical school], one of the values it's creating is respect for the community, respect for your professionals, for your colleagues and patients.
Vivien (Allied Health)

Summary of results

The medical school provided a model of learning which demonstrated that partnerships with the wider Australian community were valued. This was evidenced by the four following aspects that arose during analysis of the interviews: the medical school was a community and supportive learning environment where students generally had a sense of belonging and were aware of being treated as equals; simulated patients were a bridge between the school and the local community, providing a sense of reality and playing an important and integral role in the teaching and learning; the medical school was a model for partnership with the wider community, demonstrating respect and valuing patients, local health professionals and the wider general community; and lastly students were not only experiencing learning in teams for themselves, but by observing the activities and behaviours of team teaching, they were learning team–based practice vicariously.

By establishing a student- and patient-focused medical curriculum centred on learning in teams and partnerships with stakeholders, the medical school modelled an aspiration for students to become collaborative patient-centred practitioners.

A summary of the themes generated from the interviews conducted at the end of the campus-based program are in Table 5.2 below, linking them to the learning environment and the major stakeholders involved in the students' education.

Table 5.2 Summary of themes at the end of university based education

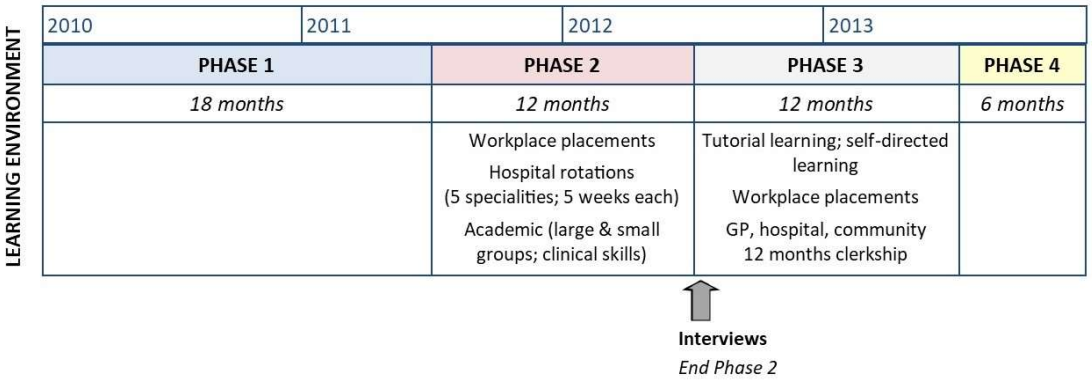
Players and the setting	Themes
The patient	The key role of simulated patients
Doctors	Teamwork: learning from different perspectives
Health professionals	
Student	Medical school culture: a model for student values
The learning environment	Belonging in a supportive learning community

Chapter 6 continues to explore students' perspectives of their journey of learning to become medical practitioners. It reports the results from students' experiences of traditional clinical specialty-based rotations, where students shadow junior doctors and physicians at local teaching hospitals.

Chapter 6: Results following completion of Phase 2 hospital based rotations

This chapter describes the themes that emerged from the students' interviews undertaken after they had completed the hospital-based rotations in Phase 2 of the four-year medical degree (Figure 6.1). Students commenced these hospital placements in mid-second year and completed them midway through the third year.

Figure 6.1 Timing of end of Phase 2 interviews in relation to medical course



Phase 2 is the twelve-month hospital rotation component of the undergraduate medical degree. A total of four local hospitals, ranging from small outer regional to 500 plus-bed inner regional hospitals, provided all the necessary generalist and specialist experiences for Phase 2 placements. Medical and clinical science theory as well as clinical skills sessions continued, but were more integrated into practice. During this clinically based year, students undertook seven, five-week rotations. The seven rotations included two in different medical and surgical units and one each of maternal & women's health, paediatrics and psychiatry. During two of these placements students were required to complete one shift, shadowing a member of the hospital nursing staff.

After successfully completing Phase 2 examinations, students were interviewed during the *Orientation to Phase 3* week at the university. No students had commenced their Phase 3 placements. Two of the thirteen students were not interviewed for logistical reasons. Two students completed their Phase 2 in the following year, but all Phase 2 interviews were analysed together. In total eleven students completed these interviews.

The interviews at this stage of medical training focused on the clinical environment and how hospital placements provide opportunities or barriers to the socialisation of medical students to work collaboratively within healthcare teams, for patient care. The interview questions (Appendix 6d) covered the following areas:

- Exploring students' views of the wards and groups they were placed in, with particular reference to the ward and team climate;
- The enablers and barriers to relationship development with other health professionals;
- Student involvement in patient care and the contributions from other health professionals.

The hospital-based twelve-month placement was a very intense time for students with a lot of changes between and within their medical rotations, and between different hospitals and two university campuses. Students experienced multiple expectations from numerous clinicians and academics as well as meeting study and assessment requirements. Six themes emerged from the rich narratives provided by students. These were:

- Tension between student learning and patient care
- Integrating into the doctor's team

- The challenge of developing relationships with health professionals
- Adapting to the challenge of the hospital environment
- Fragmented learning
- Hospital teams reflect professional silos

Themes

Tension between student learning and patient care

Students' comments during the interviews suggested that their focus had moved from the patient to the medical team with respect to learning. Students wanted to be involved in patient care but spoke of the pressure of trying to learn during this time. Students were attempting to juggle the competing requirements of clinical practice, university work and assessments, and mentioned the challenge associated with switching rotations after a short time.

> *Trying to juggle that [fitting into the team] plus trying to get an idea of what we need to chip away at, to finally get an end result in exams was a little bit tough to start with.*
> Vivien (Allied Health)

> *They're just different things you need to learn in each of those situations [rotations]. Plus, there's a lot of terminology to be learning the first couple because it's such a new environment and new skills like scrubbing and that sort of thing.*
> Janice (General Science)

> *There was a really high expectation [from surgical team] it was really hard to juggle time spent with the exam [preparation] and time that*

they wanted us to spend on the wards. There was a perception from them that we were lazy.
Phillip (Medical Science)

In the interviews after the placements in the hospital environment, there were few references to patients from the interviewed students. Generally patients were mentioned in reference to doing procedures e.g. examinations, taking blood or history taking. Students talked *about* patients, with a tendency to objectify the patient.

I didn't see my role as caring for the patient. I saw my involvement with the patient as an educational opportunity for me.
Miranda (Non- science)

So the onus on you is to see as many patients as you can, to go towards the patients, perform examinations and practice your skills, learn things like that.
Phillip (Medical Science)

Patients, on the other hand, seemed to recognise the students as part of the team, referring to students as junior doctors, providing personal information to them, asking questions and treating students as doctors.

You've got your badge on and you introduce yourself as a student but they treat you just like a doctor.
Jordan (Allied Health)

They ask me questions and you have discussions about personal issues, they divulge all their information under the confidence that even though you're in training that you're still bound by the same rules.
Katie (General Science)

In front of the patient I would report it to them [the registrar; consultant]… and then the patient would refer to me as the doctor.
Colin (Allied Health)

It's funny, if they're on the telephone with someone they'll say the junior doctor's here, I need to go.
Vivien (Allied Health)

Patients were often enthusiastic in assisting students in their learning and had the ability to increase students' strength and confidence. Those students who took the time to develop rapport with patients through a genuine interest in the patient, gained an advantage. These students were provided with the opportunity to interview the patient to obtain a history and sometimes an examination. Furthermore, this relationship often afforded access to further participation, such as being present or actually delivering the woman's baby or other opportunities for learning. Patients would insist on the student being involved.

The day she [woman in labour] came in she actually asked one of the midwives can you go grab that student with the long hair and tell her to come in; so that was really special.
Vivien (Allied Health)

If I thought it was quiet and nothing was happening I'd go in and meet the people [patient/s] and just have a bit of a chat. I'd ask permission to stay.
Tim (General Science)

You'd ask them [the midwife] to call you if the delivery is getting close for example but they won't, which was really frustrating. But one of the other midwives said you have to be there, you have to be involved.
Raj (Allied Health)

It is particularly noteworthy that Janice who had had the opportunity to follow patients during the ICE placement used that strategy during Phase 2 to follow the patients' journeys.

> *I went to the wards with one of the other students and we'd do histories and examinations. Then I'd try and see each patient before they went into theatre and take a history and do an examination to see why they were having the surgery, then watch the surgery and follow them back onto the ward to see them, what happens. We follow each individual patient.*
> Janice (General Science)

Integrating into the doctor's team

All students found that it took time to settle into the medical team to which they were assigned for each rotation. Students found it difficult to be embraced by the medical team during some rotations, either because of high staff workloads or the ward was disorganised, but also because of perceived disinterest on the part of the clinicians.

> *Paeds [Paediatrics] in [the major regional hospital] is weird. It was a really bad vibe. That was probably the one rotation that I felt that I was not that welcome.*
> Katie (General Science)

> *The first surgical [rotation] one, it was just a disorganised department altogether and they didn't particularly want the students there. The other one [rotation] was reasonably well organised but they probably had half the number of staff they needed – they had one advanced trainee with far too many patients.*
> Peta (Allied Health)

You had to I guess fight to be recognised because otherwise you we just, people didn't care if you were there or you weren't.
Miranda (Non-science)

There were other team members [registrars, interns] that just didn't know the students, didn't really want anything to do with us.
Vivien (Allied Health)

However, the majority of students developed various strategies to earn the attention of the consultants and registrars in order to become legitimate members of the medical team.

Some people wouldn't be into ward rounds that I see as a benefit to me because the registrars and the consultants can see that you're making an effort to be part of the team. Then you feel that they treat you better and you feel more part of the team.
Tim (General Science)

I tended to pick the consultants that I liked to be with that were engaging, and I'd go and see their patients. I'd go early, seven o'clock and see their patients before they came in about 8.30am.
Jordan (Allied Health)

I just wanted to show them I was reliable, I was diligent, on time, just things I would expect anyone to do in a professional capacity and in most cases that paid off. Most of the time if the consultant didn't at least the registrar noticed you were there.
Colin (Allied Health)

In addition, while recognising the importance of individual effort and time investment for gaining acceptance within the team, not all students considered this investment was of value to them and their learning.

> *To belong as a team member maybe is something that's dependent more on how your interaction with your team goes and how much time you want to invest to become part of the team, but that may not necessarily be an important part of the rotation.*
> Phillip (Medical Science)

The challenge of developing relationships with health professionals

Another theme that traversed all of the interviews was the splintered nature of students' supervision and how that impacted on the development of relationships with clinicians, mainly doctors but also nursing and other ward staff. An important factor was the duration of each of the rotations, being only five weeks. Others included being short staffed, the movement of various healthcare professionals in and out of the teams and the lack of organisation.

> *General surgery at [the hospital] was a bit of a problem because the staff specialist who was part of our team left. There was a real shuffle around of surgeons at that stage, so I didn't feel attached to a consultant per se, but I felt attached to my registrar, my intern, I felt like I was part of their team.*
> Colin (Allied Health)

> *Well you move after five weeks and the way it works the registrars usually change in the middle of that five weeks …*
> Peta (Allied Health)

> *One of the problems with geriatrics is they rotate every seven days; there's a new consultant on, so you're not with the same consultant. There's a head consultant, and each day there'd be another consultant come for that day*.
> Jordan (Allied Health)

At times the hospital environment has been described as *messy* and disorganised. This situation is not only potential detrimental to patient care but also frustrating for students to engage with patients and staff. Peta (Allied Health) describes her view of a ward in this situation.

> *I think a lot of the wards are quite dysfunctional. I think a lot of it's to do with consistency of staff and it's really hard to have some organisation if you (a) you're understaffed, (b) the medical staff are constantly changing, (c) like the nursing staff are constantly changing, you've constantly got agency nurses coming in. . . . so if nobody kind of knows the routine, nobody knows what's happening. You know, it's chaotic.*

Communication between clinicians providing care was an important factor for integration of care, both for team meetings and on a day to day basis. It became obvious that students had not noticed (or did not remember) many conversations between health professionals that could be commented on as team communication. For the majority of the time, the transfer of patient information was either written in the patient notes, on messages left on a white board or by word of mouth. Students commented that ward rounds occurred in some wards but mainly with the team of doctors. It was rare for another health professional to consistently be present during

these ward rounds. Interestingly, Jordan recognised that the lack of a combined ward round with nurses and doctors was detrimental to staff communication.

> *They [Nurse Unit Managers] always did the ward rounds with the doctors. So they would be up to date. It seemed like that was the set up on that rotation; there was always a nurse there. In other wards I guess there were times when there were nurses following around ... but I don't think it didn't seem structured. I think that was probably the one rotation where there was the least amount of miscommunication.*
> Jordan (Allied Health)

> *I guess in the notes or messages would be passed on. Like a doctor would say to the nurse ... if there was a chance to tell that nurse something. I'm actually not sure how the information got across. I think I'm assuming it was the nurses write on the whiteboard ....*
> Miranda (Non-science)

> *In some places, if there was allied health, they'd come in and just make a note; ... but other times if it was smaller [hospital] you'd see the OT [Occupational therapist] or the speech therapist or physio or something come in and they'd [nurse] briefly do a bit of a handover.*
> Phillip (Medical Science)

When students had limited or no access to a member of the medical team, students approached nursing and midwifery staff for assistance which was not always forthcoming. Students would seek assistance or guidance for learning opportunities, particularly to find patients who had clear signs and symptoms of disease or who could provide a good history. Access was often controlled by doctors and nurses or midwives.

They'd [nursing staff would] approach patients and say they had a student with them and is it okay if they sit in?
Janice (General Science)

Like asking for advice [from nurses] at what patients are good historians or who be good to examine and things like that....
Phillip (Medical Science)

It wasn't like you were assigned… find out when you'd be in labour ward and then try and coax the midwife into letting you be with the patient if she was a nice midwife.
Miranda (Non-science)

I think (I didn't enjoy) obstetrics and gynaecology; just because I didn't get enough exposure. It was very hard; there were a lot of things going on, a lot of issues in the hospital with midwives not giving enough access and whatnot.
Raj (Allied Health)

Students' strategies for dealing with nursing and midwifery staff had mixed results, particularly when they attempted to gain acceptance to be involved in patient care.

I just spent heaps of time with the midwives there because Dr S's not around. So [I was] building rapport with them because they were my team down there. I like O and G [Obstetrics and Gynaecology], but I just found it was a battle to do anything with the midwives down there.
Miranda (Non-science)

When I was hanging around and there was nothing going on, I'd go up to the nurse and say what bloods are you taking? They would pull the sheets out and just ask can you take this, this, and this?
Jordan (Allied Health)

Adapting to the challenge of the hospital environment

Students began their medical training with awareness that there was a hierarchy within the hospital environment, and their place within it (entry themes). This was reinforced during the hospital rotations both overtly as well as covertly. Students were told this by medical clinicians in lectures, at orientation to Phase 2, in the hospital rotations and in the manner in which students were treated in the hospital.

> *Well it's very rigid. You have the consultant and then the regs [Registrars], the residents and interns....*
> Miranda (Non-science)

> *You knew where you were in the pecking order ... It's just a lot of the clinical lecturers will just say you are at the bottom of the pecking order. It's just something that's said; an accepted principle ... it's through the ages because they [qualified doctors] were the bottom of the pecking order when they went [to medical school] so we're the bottom of the pecking order now that we're here.*
> Janice (General Science)

> *We had several consultants, they come in, you'd pretty much get ignored, they'd barely say hello to you even though you make yourself known to them that you're a medical student.*
> Colin (Allied Health)

The prevailing mood of the hospital wards had a significant influence on students' relationships and learning opportunities during their placements. Students were exposed to both positive and negative working relationships, each of which set the tone and contributed to the value of the placement as a learning environment.

In [that small country hospital] they had a very consistent nursing team. A lot of the other nursing units they have a lot of staff coming and going and the dynamics weren't actually particularly functional but that [country hospital] ward worked really well. I didn't think we'd get many patients out there but we actually got more than a lot of other students did.
Peta (Allied Health)

In something like paediatrics where with all the nurses we did have very good positive interaction with the nurses and they were happy to give us some advice.
Phillip (Medical Science)

I felt like the nurses kept to themselves, and the consultants kept to themselves ... it definitely wasn't as co-operative as I'd seen in other rotations. It was really difficult try to get experiences.
Katie (General Science)

It was very difficult, and also the midwives have a very patchy relationship with the staff specialist there. I think because of that rift they took it out on the medical students as well.
Colin (Allied Health)

Fragmented learning

During the early part of each new rotation, students spent time getting known and accepted by the medical team, and working out that team's dynamics. Part of this entailed working out strategies to gain access to learning opportunities.

That [access] depended on the different areas that we were doing. So on the actual labour ward that was through the midwives. They'd approach patients and say they had a student with them and is it okay if

they sit in? The appointment with the gyno [gynaecology] clinic you'd be sitting in with a doctor because they were so busy you'd never actually do anything, you just observe.
Vivien (Allied Health)

It wasn't like you were assigned… find out when you'd be in labour ward and then try and coax the midwife into letting you be with the patient if she was a nice midwife.
Miranda (Non-science)

The previous quotes illustrate the difficulties students experienced to gain access to patients to assist in their learning. It took time for students to work out how they could gain access and with only five weeks in the rotation, students, midwives and medical staff were almost strangers at least in the early weeks.

Especially only being a short timeframe for each rotation. It felt like you were just trying to find your feet and then you switching to a different rotation.
Tim (General Science)

You can try and be polite and friendly towards them [other healthcare professionals], but five weeks is not enough time to forge your own relationships with them … we don't really spend a great deal of time with any other professionals.
Phillip (Medical Science)

Adding to issues of access to patients and the short duration of each rotation was the staff being overworked. As discussed in the theme on integrating into the doctor's team, students commented about the heavy workload of health professionals.

So there's a high patient turnover in comparison to some other wards which made it worse.
Janice (General Science)

The registrar was a bit overworked for a number of reasons and she didn't really have the time for us.
Colin (Allied Health)

Consultants just seemed too busy, but they're always approachable, and the interns and residents were the ones that you'd try to target but they were covering two teams…it was always very busy.
Katie (General Science)

It is not difficult to imagine that being under pressure due to the workload that some healthcare practitioners were disinterested in students, particularly when nursing and medical staff also moved around. While nurses and midwives usually changed between shifts on the same ward, doctors rotated between wards and hospital at times.

In some cases when the consultant was just rotating all the time it was very difficult to gain rapport with a consultant.
Vivien (Allied Health)

There is turnover of teams as well: like a change of registrar halfway through a five-week rotation means it's hard to gain rapport or whatever.
Janice (General Science)

The comments contributing to this theme highlight organisational problems within the acute setting and how this can contribute to more fragmented learning in these situations. Workload pressure and frequent short rotations of

staff and students left little time for students to build any relationship with healthcare staff and patients. It is not surprising that students had difficulties accessing patient care and following patients.

> *Ward learning is very brief and Registrar directed … a lot of the time I'm lost about what they're talking about and unless you approach them and then they give you feedback … the learning is a lot slower and a lot more sporadic.*
> Janice (General Science)

Hospital teams reflect professional silos

One of the stronger themes emerging during the interviews after the hospital rotations was the lack of cohesive teams involved in patient care. Care appeared to be separated with little direct conversations between professional groups. Nurses, doctors and allied health had their individual teams. Students aligned themselves as part of a team of doctors as discussed in an earlier theme.

> *The nurses would be doing their jobs and the doctors would be doing their jobs and it was quite separate.*
> Miranda (Non-science)

> *There's no one there to support you. The nurses have their own team and their own dynamics.*
> Katie (General Science)

> *Allied health and other members have their own separate hierarchy… just like the nurses would be doing their thing and the doctors would be in their groups and they are all quite individual [groups].*
> Janice (General Science)

Adding to a sense of professional silos was the lack of communication between health professionals within some wards of the hospital.

> *But then what I found was the way things ran more smoothly was if you actually are talking to other people and other people are coming to ask you questions because nursing staff and other health professionals would only really approach the doctors that they thought they could actually have a proper conversation with.*
> Vivien (Allied Health)

> *I also noticed a strange connection between the actual doctors and nurses. They tended to have their own ward rounds and I didn't actually observe much conversation between the nurses and the doctors.*
> Tim (General Science)

> *I don't think I ever really saw communication between a consultant and another health professional besides a nurse. In terms of allied health maybe the residents or registrars would catch someone in the corridor and say, I've written in the notes that this person needs to mobilise etcetera … or something like that.*
> Jordan (Allied Health)

Students found that very few hospital wards demonstrated any model of collaborative practice. Generally, the students reported that the hospital teams reflected professional silos, where professionals were part of their own team. The exceptions were in psychiatry and rehabilitation.

I definitely saw it as doctors are here, nurses over there, allied health I don't know where they were because I didn't really see them apart from rehab.
Miranda (Non-science)

The psych [psychiatric ward] meetings were like that [interprofessional], where they had nurses and allied health and everything, but I can't remember the other ones.
Raj (Allied Health)

They'd have a monthly meeting. They talked about my patient … I can't really think of a meeting where they had a bit [of a] interdisciplinary thing. It would've been nice to have a situation where they had the consultants, and the nurses, and they had whoever else was involved in the ward.
Katie (General Science)

Summary of results

Students commenced the year-long Phase 2 rotations with enthusiasm, aiming to gain valuable clinical experiences and to contribute to patient care where possible. The majority of interviewed students realised the importance of developing relationships not only with the doctors with whom they worked, but also with nurses and other staff involved in patient care. However, the very nature of rotations with continuous changes meant that students were constantly moving in and out of different wards and medical areas. There was little time in which to form any professional relationships, especially if there were any barriers. Barriers could include the consultant, and/or other members of the medical team, the prevailing atmosphere of the ward, the nurses and the

influence of any on-going divisions between health professionals. The nature of the acute setting and organisation of the hospital system were major contributors to fragmentation of students' learning.

These continuous changes during the year added to the pressure students felt as they juggled many competing demands on their time during the hospital rotations. The previously expressed ideals of the medical school's model of collaboration with the community, and the value of patients or other health professionals in student learning, had at least for the present, been superseded by the importance of gaining acceptance within the medical team. The pressure of completing the necessary requirements for each of the rotations may have been a factor in the tendency of students to objectify the patient for their learning.

Overwhelmingly, the students saw the team within the hospital as a team of doctors, and adapting to the hospital and medical hierarchy was not without its challenges. Students aligned themselves with the medical team and worked out various strategies to develop relationships and gain acceptance with the consultant and other members of the medical team. Nurses and other health professionals were in separate teams with their own hierarchy. Dieticians, physiotherapists, pharmacists and other allied health workers were rarely mentioned, restricted only to occasions where they may have been with a patient or in the ward. The summary of interviews themes from the completion of hospital rotations (Phase 2) are in Table 6.1 below.

Table 6.1 Summary of themes from interviews at the completion of hospital rotations

Players and the setting	Themes
The patient	Tension between student learning needs and patient care
Doctors	Integrating into the doctor's team
Health professionals	The challenge of developing relationships with health professionals
Students	Adapting to the challenge of hospital environment
The learning Environment	Fragmented learning Hospital teams reflect professional silos

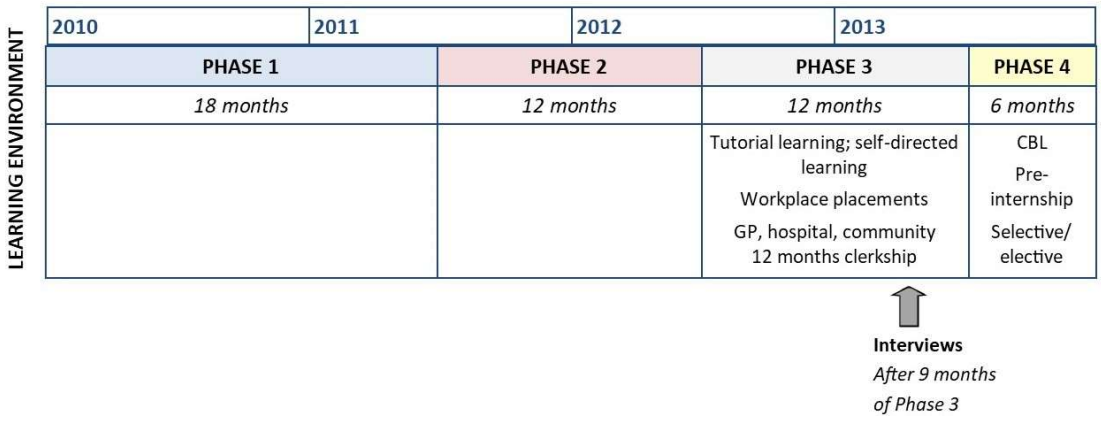
At entry to medical training, students voiced preconceived ideas about hierarchy in the hospital and the doctor's dominant role in collaborative healthcare. Student experiences during the hospital rotations had the potential to re-enforce these preconceived views of doctor-centred medicine. However, it is also possible that the hospital block rotations may have focused some students' resolve to provide patient-centred care.

The following chapter describes the results from students' experiences during the longitudinal integrated placements, further illustrating how learning environments contribute to students' perceptions of patient-centredness and collaborative practice.

Chapter 7: Results towards the end of Phase 3 longitudinal integrated clerkship

Chapter 7 focuses on the analysis of the interviews conducted nine months into longitudinal integrated clerkships (Phase 3), as indicated in table 7.1, followed by a brief description of the analysis of mind maps.

Figure 7.1 Timing of end of Phase 3 interviews in relation to medical course



Phase 3 comprises a longitudinal integrated placement, usually referred to a Longitudinal Integrated Clerkship (LIC) in the international literature. Globally the number of LIC medical programs has been increasing exponentially (Worley 2016). This LIC approach was chosen for Phase 3 as it has been reported to provide medical students in the last year(s) of their education with the responsibility of supervised, comprehensive care of patients often based in a primary health setting (Worley et al. 2006). The LIC program at the University of Wollongong placed all students in one of ten learning *hubs* for twelve months, so required the majority of students to relocate for twelve months to a new location after two and a half years in one of two university sites. The remoteness category in which each interviewed student completed Phase 3 is shown in Table 7.1.

Table 7.1 Remoteness area of placement of interviewed students

Pseudonym	Phase 3 Placement
Miranda	RA3
Peta	RA2
Janice	RA3
Vivien	RA2
Renee	RA2
Katie	RA2

Pseudonym	Phase 3 Placement
Jordan	RA1
Tim	RA1
Raj	RA2
Phillip	RA1
Roger	RA3
Roman	RA2
Colin	RA2

RA1: major cities of Australia; RA2: inner regional Australia; RA3: outer regional Australia

These clerkships also provided opportunities for all the students placed in each hub to get together for study, support and discussion with each other and the local academic and administrative coordinators. A week of activities typically scheduled during a longitudinal integrated clerkship is shown in Table 7.2.

Table 7.2 Example of students' scheduled experiences during the longitudinal integrated clerkship

	Monday	Tuesday	Wednesday	Thursday	Friday
AM	General Practice	Private Study	Academic Learning: case-based tutorials, on-line learning, other tutorials, simulation and/or clinical skills	Other inpatient and community experiences	General Practice
PM	Accident & Emergency	General Practice		Surgical Assisting / Obstetrics/Diabetes Education etc.	Private Study / Specialist Practice

It was thought that the extent to which each student settled into their placement would be pivotal for their learning during this placement. With this is mind, initial questions asked about how each student had settled into his or her placement. The interview then focused on gaining insight into students' participation in both the community and hospital placements. Finally, students were asked to create a mind map. Details of interview questions and instructions for the mind map are provided

at the end of the *Interview guide during longitudinal integrated clerkship (Phase 3)* in Appendix 6e.

The last months of medical training are a very busy time. Students completed examinations at the end of Phase 3 then left for various international, national and local placements during the remaining six months of the program. This process presented logistical challenges not only for interviews but also for the administration of RIPLS. The decision was made to conduct the final interview with students three to four months prior to completion of Phase 3, and prior to their end-of-phase assessments. Interviews were conducted at each of the student's locations within New South Wales at a suitable venue negotiated with each student. The remainder of this chapter reports on the results from the analysis of the interviews, followed by the mind maps.

The interviews provided insight into students' experiences of the community-based integrated longitudinal clerkship and analysis resulted in six main themes. These themes are labelled:

- Learning with and from patients
- Preceptors as professional mentors
- Opportunities for interprofessional practice
- Becoming a professional
- Longitudinal relationships in community(s) of practice.

These themes, with illustrative citations, will be discussed in turn. These are not isolated groupings as students' attitudes and views overlapped in the themes.

Themes

Learning with and for patients

> *Without patients you won't learn anything.*
> Miranda (Non-science)

An important transition occurred during the time students were learning and working in the longitudinal integrated clerkship. Students' foci changed from the centrality of the professional which occurred during the Phase 2 rotations in the hospital, back to a patient-centred care approach. In contrast to previous discussions with students about patients, patients had now become the subject, rather than the object, of learning. The interviews provided an opportunity for students to reflect on their learning, particularly while they were constructing their mind maps of this clerkship experience. Jordan (Allied Health), discussing the differences between learning during Phase 2 (hospital) to Phase 3 (community), said:

> *I found in Phase 2, you're always running around looking for that classic exam… or the doctor said "Just go and listen to this person, go look at these signs" all kind of really narrow stuff … whereas in GP [during Phase 3] you have your own patients and you're learning from patients … you have to get the information first-hand.*

Students recognised that they needed to work together with patients for their learning but also for the patients' learning. Students were also assisting patients to understand their medical condition/s.

Patients I see two-way learning; I'm learning about them and they're learning about their health conditions. Their role is quite integral towards our learning.
Colin (Allied Health)

Patients' health was often within a context of co-morbidity or multi-morbidity which was very confusing at times for students. They needed to differentiate the nature of these conditions and be able to clearly understand the patient's situation in order to provide collaborative patient-centred healthcare, as Colin continues:

When a patient comes in and sits down and it's not like what in clinical skills sessions where they've just got the one problem (laughing). It's like "I've got shortness of breath", no, no, no, "Oh, I've got shortness of breath, my back hurts, now I need you to change this drug to another drug and I went and saw the specialist the other day". It was like "Oh my God". It's kind of get all your thoughts ordered and where do you start.

Many students realised that while they were learning about medicine, they also learnt many other subtle aspects of working with patients. The tacit knowledge gained varied between students, from how to interact with patients to insights about a patient's reality in terms of their life, and the value of seeing the whole patient. The repeated presentation of patients provided a setting where students were developing as patient-centred professionals, as they gained knowledge of their patients as individuals.

I had regular patients. I mean I had methadone patients in that practice, I had every one and they were all fantastic – I learnt a lot about my patients.
Peta (Allied Health)

I think I learned so much from them [patients] – how to ask questions properly, how to respond to people's responses, just the whole… not so much learning of knowledge but learning to interact.
Jordan (Allied Health)

You know, you kind of feel that they're there to help you with the learning ... because what you see in real life is very different to what you see in text books and clinical skills with patients who are actors. You see them as individuals.
Colin (Allied Health)

Central to learning in the longitudinal clerkships was the student-patient relationship which developed over the duration of the clerkship. Colin's comment below expresses the essence of this relationship:

Most of the patients who I've seen have always been very encouraging. ... It's good to get feedback from them as to how they felt throughout the consultation and they usually don't mind seeing medical students. It's a two-way thing.
Colin (Allied Health)

Throughout this integrated hospital and community placement, students learned to collaborate and take responsibility for not only their learning but also for the patients' understanding of their own healthcare. This happened within the context of co- or multi-morbidity of patients' medical conditions and the complexity of real

life experiences. This theme illustrates the importance of continuity of care and the valuable contribution from patients towards students' learning. Furthermore, it illustrates the primary importance for students to learn patient-centred care from patients.

Preceptors as professional mentors

General practice (GP) preceptors became an important role model for students' learning, and most students developed strong professional relationships with these doctors.

> *He's like a role model so that's our relationship. I could go to him for any problem and yet, we've got our professional boundaries and he's my mentor, he's my teacher and my supervisor.*
> Vivien (Allied Health)

Probably just as important was the opportunity for students to observe how doctors conduct themselves with other people. Students observed how the GPs related to patients, nurses and administration staff on a regular basis. Many had stories of their observations of doctor – patient interactions.

> *Even the way he thinks, it's like he's always looking for the best for the patient.*
> Colin (Allied Health)

> *You know, it's just so rewarding to see what Dr M [does], he is so inspiring because he just loves his job; he has so many fans, like his patients.*
> Vivien (Allied Health)

Just the way that he conducts his practice, … he lets the patients talk and do things but he has a… like he's able to really direct, subtly direct, the consultation so that he's getting the information that he needs to get but letting the patient kind of feel like they're in control of how things are going but…he does create that rapport as well.
Katie (General Science)

They treat their patients with respect and they treat me with respect.
Miranda (Non-science)

Importantly, the duration of the clerkship provided continuity of supervision which fostered student-preceptor relationships. Students reported that their preceptors were encouraging, supportive and non-judgemental. Over time, preceptors became trusted advisers for students and at time confidantes.

It's just so rewarding to see what Dr H does, just is so inspiring because he just loves his job. I'm very content with the relationship. He's completely non-judgemental.
Vivien (Allied Health)

One of them [preceptor] was a skin specialist so he did lots of procedural excisions and things like that which I got to help with. Now he lets me do some of the simple ones … and supervises me…
Tim (General Science)

It wasn't formal [relationship with preceptor]. It was very informal so it was very friendly the relationship. There were no pressures of having to perform or anything. If you were wrong, you were wrong; they didn't judge you – they just helped you out with what needed to be…
Roger (Allied Health)

Interestingly, students were discriminating and took the best bits as role-modelled by their preceptors and other staff encountered during their placement.

> *I kind of just try and take the positives or take little bits from different doctors.*
> Roger (Allied Health)

> *Definitely two of the doctors and the registrar [I see] are role models as doctors. One of the doctors, their bedside manner I quite like. For both of them the sort of precautions they put in to be safe; not missing things and that I really appreciate.*
> Janice (General Science)

> *I really liked the way that he [preceptor] practiced. There was a lot of focus on the relationship with the patient and I really liked that so he was definitely a role model.*
> Renee (Allied Health)

Opportunities for interprofessional practice

The opportunities for collaborative practice in the primary healthcare setting were mainly with nurses. Practice nurses were central to a GP practice, as Katie remarked about her placement venue:

> *The practice itself would crumple without the nurses, you know, and I think the doctors really recognise that and appreciate that and it's just a really positive environment. There was a really good working relationship and they kind of treated them as equals.*
> Katie (General Science)

There were also some times when there may have been issues around professional boundaries as illustrated by Tim (General Science):

> *I did feel that that her role [practice nurse] … like that was her role and I felt maybe that she didn't particularly want it invaded so much. Her schedule is made up of vaccinations and things and if I kind of cut into that she wouldn't have had as much to do.*

The primary health practice in which many of the students were placed did have a physiotherapist, psychologist or other allied health professionals but students had little or no formal encounters as explained by Tim;

> *In terms of allied health, I maybe met them once or twice but I didn't really do much work alongside them or with them.*

The exception was when the practice organised a diabetic clinic or similar. In this situation the patient would be seen by their doctor, a diabetic educator, nurse and possibly a dietician depending on the practice.

> *He [the patient] would come in, see the nurse, see the diabetes educator and then see me. My role would be educating the patient and examining them, making sure that they're okay and then they would see the doctor. Sometimes I'd sit in with them and it would a three-way conversation.*
> Raj (Allied Health)

> *I've sat in with the diabetes educator and the dietician when they have seen a couple of our patients.*
> Janice (General Science)

While this may have occurred for a few students, for many their opportunities for collaborative practice were limited, mainly centred on informal discussion such as casual conversations in the tea room. Students described some of these encounters where they learned about the expertise of other health professionals and how they contributed to patient care.

> *Usually we have discussions casually, confidentially without mentioning people with the others [doctors, nurses] relating to care in the tea room sometimes with the psychologist. It was a good forum to bring up anything that was interesting and then share stories and ideas.*
> Colin (Allied Health)

> *I found out more about her area of expertise [psychologist] and more what she's kind of specialised to ... sometimes you learn a lot by actually sitting down at the lunch table and discussing not necessarily a specific person, but a range of issues.*
> Tim (General Science)

Still other students found opportunities for collaborative practice in the hospital setting, particularly the Accident and Emergency department. Student quotes demonstrate that they recognised the benefits of co-location (living and working together in a small town), and getting involved in team meetings.

> *Living in [this country town], you see people from the surgery and everybody knows each other so I think the way they work and they communicate is much better coordinated [between doctors and nurses] the regular simulation sessions and drills also help, just in case of a crash call or something like that.*
> Roman (Medical Science)

They encouraged us to go to nursing handovers [in the hospital] in the morning. At the start I thought, you know, 'Nurse hand-over, I'm not sure how much that would actually assist me' but yes, it was really good. You feel like you're really part of the team after that. I'm glad I did it.
Roger (Allied Health)

One thing I commend about neurology is every time I'm on a neurology specialty day, I'm always bumping into someone like "Oh we're having a case meeting about all our patients, are you coming?" where physio, the OT [occupational therapy] and the nursing staff, they all contribute so everyone knows what every specialty is doing.
Katie (General Science)

Students were also privy to many interactions between professionals. Interestingly, Vivien (Allied Health) became aware of her GP's attitude to other health professionals:

I think GPs back then, they have more respect for allied health [professionals], and he often contacts the physio or whomever, by phone and gives a rough handover.

This was reinforced during her discussions with the practice physiotherapist:

they'll [physiotherapists] say "Oh you know, that Dr M, he's always looking out for us and giving us extra tips and things like that."

The professional interactions which students observed and described during these interviews demonstrate the positive interprofessional work community that many

experienced during the longitudinal placement. Inevitability, there are tensions in any work environment which at times, lead to conflict. An example of one of the challenges to collaboration was conveyed by Jordan (Allied Health) about an incident he had witnessed:

> *There was a bit of conflict in my GP practice in terms of the nurses and some of the staff at the front desk and two of the doctors and it's just like a vicious cycle - no communication at all and they don't listen to each other.*

Students had numerous opportunities to work with other health professional in both the GP practice and at the local hospital. There were also occasions where they observed collaborative practice and had experienced formal and informal interactions with a range of health professionals at work. Student comments acknowledged the quality and nature of health professionals' interactions with each other. This occurred at a formative time for student professional development in a workplace setting and was likely have had a powerful influence on any change to medical student attitudes and beliefs about other health professionals.

Becoming a professional

Anecdotal evidence suggested that many students were attracted to this particular medical degree due to the twelve-month longitudinal clerkship. The value of these clerkships to students was in the continuity with preceptors, patients and other practice staff and the responsibility afforded them by their patients and preceptors. The data suggested that this was a major contributor to the development of students'

professional identity. The responsibility of providing patient-care accelerated students' confidence and independence as expressed by a number of students:

> *Being a medical student in Phase 3 I think certainly in the region where I was you're afforded a lot of responsibility and opportunities which is good.*
> Phillip (Medical Science)

> *So, yes, it's been really good. I've thoroughly enjoyed parallel consulting; it's increased my confidence so, yes, it's been good. It's been quite positive.*
> Vivien (Allied Health)

> *I think I'm a lot more confident now with just being comfortable with the unknown and just tackling things when they [patients] come in.*
> Tim (General Science)

Students appeared to be gaining a greater understanding of what it means to be a doctor in general, and especially in primary healthcare. Katie (General Science) reflected on the experience during Phase 3 as *opening her eyes* to being a better doctor:

> *It was really good for me to have a term like this where I had a bit more freedom and kind of had to initiative things on my own a little bit. I know it will make me into a better doctor in the long term.*

In general, students recognised quality in the doctor-patient interactions assisting students to develop a deeper understanding about communicating with patients. They observed important qualities of being a doctor, particularly the manner in

which doctors showed respect for their patients, including being holistic and thorough.

> *I think all the experiences we've had – and it's just confirmed in this Phase – is that working together definitely provides a more holistic management to a patient.*
> Vivien (Allied Health)

> *Well I mean I think I'll always have the intention of trying to be as holistic as possible and you know, try and see all sides of the patient. I will definitely want to do that.*
> Renee (Allied Health)

Students also observed and commented on the working relationships that their preceptor had established with practices nurses and junior doctors (GP registrars), colleagues who, without doubt, were valued. Observing these preceptor working relationships led to students' growing appreciation of the reality of community practice.

> *Yes, it was just an incredible working environment. The cooperation between all of them [doctors, nurses and administration staff] and ... like it's just a really positive environment and they're happy to ... if they're not sure about something to call in others.*
> Tim (General Science)

> *It was a really good working relationship between the GP registrars and [qualified GPs], they were kind of treated as equals and then the nurses as well ... the nurses were often just as busy as the doctors.*
> Katie (General Science)

Time management was a particularly important concept students identified, recognising the importance of being efficient and thorough when working with patients. Students were learning, from observing their preceptors, how to focus the patient assessment to the problem at hand.

> *There would be a lot of things that I would see in some doctors that I would try to do like time management for example or efficiency in diagnosing conditions, like that sort of thing.*
> Raj (Allied Health)

> *So, before, when someone say with hypertension used to come in we used to do a full cardiovascular history, full examination whereas now we check for complications of hypertension instead of doing the full thing.*
> Vivien (Allied Health)

> *I aspire to **her** because of the way she approaches patients, the way she gets her job done is very efficient, very professional. Yes, I just see her as a role model.*
> Roman (Medical Science)

The students' quotes of their experiences and observations demonstrate the importance of continuity in the Phase 3 clinical placements. Their longitudinal placements provided an iterative learning environment where students could work in an apprenticeship-style manner, facilitating the process of how they began to see themselves as doctors. Students as authentic participants in this community of practice, were developing their professional personae and becoming active members of a collaborative healthcare team

Longitudinal relationships in community(s) of practice

Phase 3 was an exciting and challenging time in a student's professional and personal growth. Students met a variety of people and health professionals during this placement, many of whom they would need to develop professional relationships. However, the initial concern for students was making sense of general practice, how the organisation worked and their place within it. This included learning the practice routines such as writing the computerised patient notes.

> *I observed for the first week and a half I think and then we saw a couple of patients with them [preceptor] sitting in with us and then we started seeing patients without them and later they'd come in and double check.*
> Janice (General Science)

> *... I mean it definitely took some time to figure out where I fit [in the GP practice] but I got there in the end.*
> Katie (General Science)

> *We had about a one week... yes, the two days was just familiarise ourselves with the computers and log-ins and X, Y and Z and we started seeing patients the next week. Within... yes, our second or third week we were seeing patients on our own.*
> Jordan (Allied Health)

Other early challenges for some students included managing preceptors and other staff, as well as patients' expectations of their capabilities.

> *Some of them [doctors], I think their expectations are very different of what you go to do. Some of them just expect you to come and observe, some of them expect you to come and they'll teach you and get you*

involved and other ones, they don't seem to really want you there.
Janice (General Science)

Well there [were] more realistic expectations in terms of time and learning objectives and things like that. I found it was a much slower pace [than Phase 2].
Phillip (Medical Science)

Often patients who I was parallel consulting with – so I was seeing them [patients] by myself, might have been expecting similar things out of me as from the doctor. I was usually pretty clear at the start that "I'm a student doctor" or medical student.
Renee (Allied Health)

Meeting these early requirements set the groundwork for building the necessary relationships with patients, nursing and administration staff as well as their preceptor(s). While continuing to establish themselves within their placement, most students availed themselves of the opportunity to work repeatedly with the practice nurses. Initially students looked to nurses for assistance with technical skills such as taking blood samples, giving injections or wound care. Over time students became increasingly aware of the experience and competence of the practice and emergency department nurses. Comments about the professional relationships between the medical students and nurses revealed a level of respect for nursing staff, evidenced in the tone and manner of their voices.

The practice nurse – the practice nurses they're so smart. They know so much about what they do. They know their technical things like basic interpretation of the ECG [electrocardiograph] and taking bloods but they also know things about wound care …
Katie (General Science)

One in particular would kind of … would automatically get me out a pair of gloves or say "Phillip is assisting with this one". In that way they would facilitate my involvement a lot more.
Phillip (Medical Science)

Students' willingness to be involved in the medical practice activities and the duration of time for relationships to develop, facilitated the willingness of nurse and doctor willingness to include students.

The ED [emergency department] nurses are fairly consistent and they take the time to get us involved. There's like Kim [nurse manager] knows me really well and she's lovely and even the nurse educator is really good and then the nurses on the floor… you usually see the same nurses all the time and they're fantastic.
Colin (Allied Health)

We had three practice nurses who rotated … because ultimately, we were so receptive towards them as well, like, you know, we actually actively told them that "Look, you know, it would be great if, you know, if you see something interesting you could call us." So we made it [known] and so they just gave it 200% back.
Vivien (Allied Health)

This reciprocal nature between students and people involved in students' learning provided an enduring sense of belonging for students and connected them to the community.

Yes, it was really good and I mean because we were there so long term … one year longitudinal GP practice, definitely you become part of [the

practice], you have a professional relationships with them all [Administration staff, practice nurses and GPs].
Renee (Allied Health)

Because you're with different doctors all the time so you still see the same patients coming back so it does feel like a connected kind of community.
Tim (General Science)

During the interviews, questions about peers were not included as it was deemed not relevant to the research question. However, the majority of students included peers as part of their network when they constructed their mind maps. Importantly, this reflects the contribution of peer support to aid the transition for students into membership of the healthcare community.

All students undertaking clerkship in each locality met together one day a week for formal educational activities facilitated by the medical local co-ordinator. Student groups were generally 6 to 10 people, and activities included case-based discussions which on occasion involved invited specialists, video conferenced lectures from the main university and clinical skills. These formally organised academic day in the hub of their placement provided students with opportunities to share experiences as well as helping each other solve problems and work through challenges.

I mean, especially with my peers, you know, just quizzing each other and getting to share the information we have and working together and you're showing interesting cases at the hospital and things like that…
Katie (General Science)

I definitely felt supported by my peers. They were amazing… I mean they were always there to talk to, to debrief with stuff, we did a lot of study together.
Peta (Allied Health)

Sometimes if you feel like, "well I'm the only one that feels this way" you can talk to your peers and know that other students feel that way too.
Raj (Allied Health)

Over the twelve months, the academic days allowed students to share the realities of clerkships as well as providing social and academic support while students transitioned into the various communities of practice. Continuity of peer support was a further benefit of the longitudinal placement.

Importantly for learning patient-centred collaborative practice, the longitudinal integrated clerkship afforded continuity in the care of patients and constancy of supervision by their preceptors. The on-going nature of the placement provided a setting where students were developing as patient-centred professionals.

I've had patients who I've seen on an ongoing basis, which is good because sometimes you get to see how they're progressing. For instance, I can remember a young girl with multiple sclerosis, she came in one time just a train wreck and the next time I saw her she looked like a million dollars. She had been taking the antidepressants that we prescribed to her, it was just a change in her nature.
Colin (Allied Health)

This [placement] was being with the same doctors, the same nurses, the same practice staff for the whole year, two days a week. So, we got to know them really well and it was very comfortable and familiar and it made it an easy learning environment…
Renee (Allied Health)

During this twelve-month placement, students learned within the social reality of their local community. Data revealed that social bonds can develop initially from shared task involvement; however having the time and a shared passion allowed students to progress from beginners to confident and trusted practitioners-in-waiting.

Yes, I mean I've taken stitches out without any supervision because I was confident doing it. I think the nursing staff trust me, so they left me to finish.
Roman (Medical Science)

Now I'm at the point where the doctor only comes in if they're sick so I actually just hand over all of it verbally.
Janice (General Science)

… You know, seeing parallel consulting at first was very scary but eventually it became quite comfortable. I sort of felt like by the end of it "Oh, do I really need to go off and sit my exams now? Can't I just stay here?"
Renee (Allied Health)

Now, the days that I'm at the GP clinic, things run a bit faster because I'm seeing every alternate patient so things run a little bit faster … less of a burden on Dr M.
Vivien (Allied Health)

Analysis of mind maps

During this research, mind maps were used to gain a greater understanding of student learning environments within their longitudinal community-based placements and the students' relationships with other health professionals during this time. The greatest value of completing the mind maps was as an adjunct for the researcher to explore the relationships and experiences which were important to each student interviewed, and gain an understanding of the meaning that she or he ascribed to these experiences. The mind maps illustrated the strength and importance of students' relationships with their peers which was not a topic covered in the question guide, demonstrating the added value of the mind map as a tool to facilitate a comprehensive understanding of the students' experiences. In retrospect, it may have been beneficial to have used mind maps in earlier interviews. Particularly as peers were important early in the program, e.g. in skills giving peer feedback, and in Phase 2 when students faced the challenges of the hospital environment.

Most of the mind maps were spider-type maps with the student at the centre, representing the relationship connections in the learning environments. The strength of learning varied and students used either the number of lines or line thickness to display this. Below are two examples of students' mind maps which illustrate the key players in the community(s) of practice students in which students actively participated, and who contributed to student learning during the longitudinal integrated clerkship.

FIGURE 7.2 MIND MAP BY VIVIEN (ALLIED HEALTH)

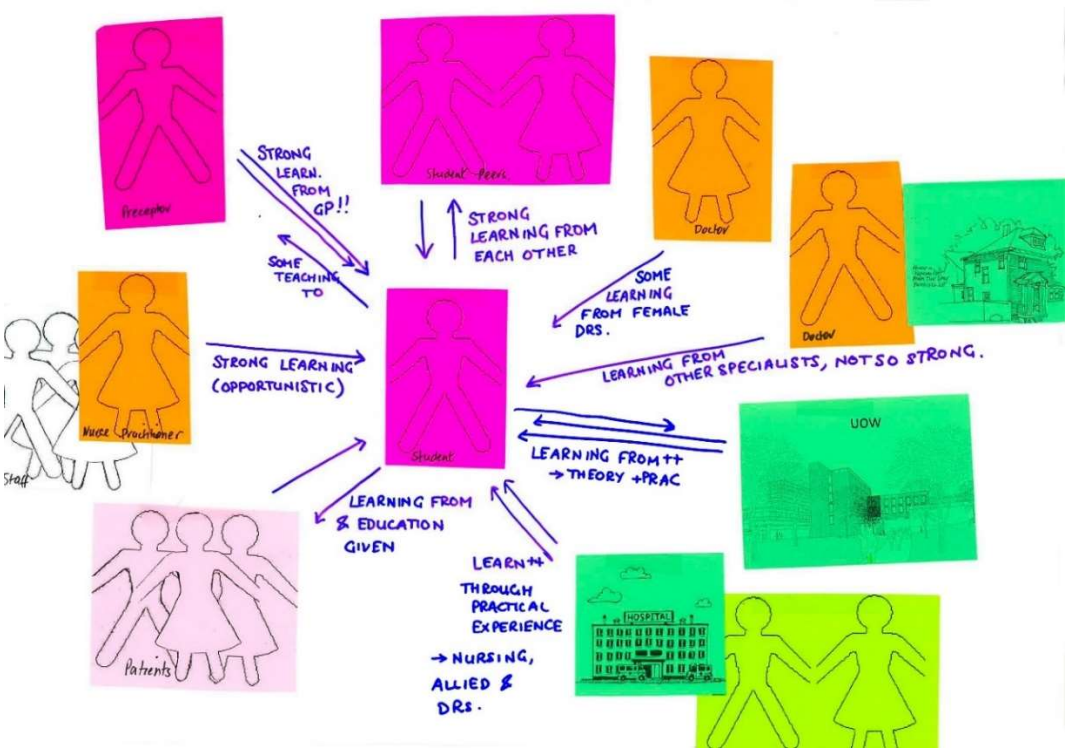
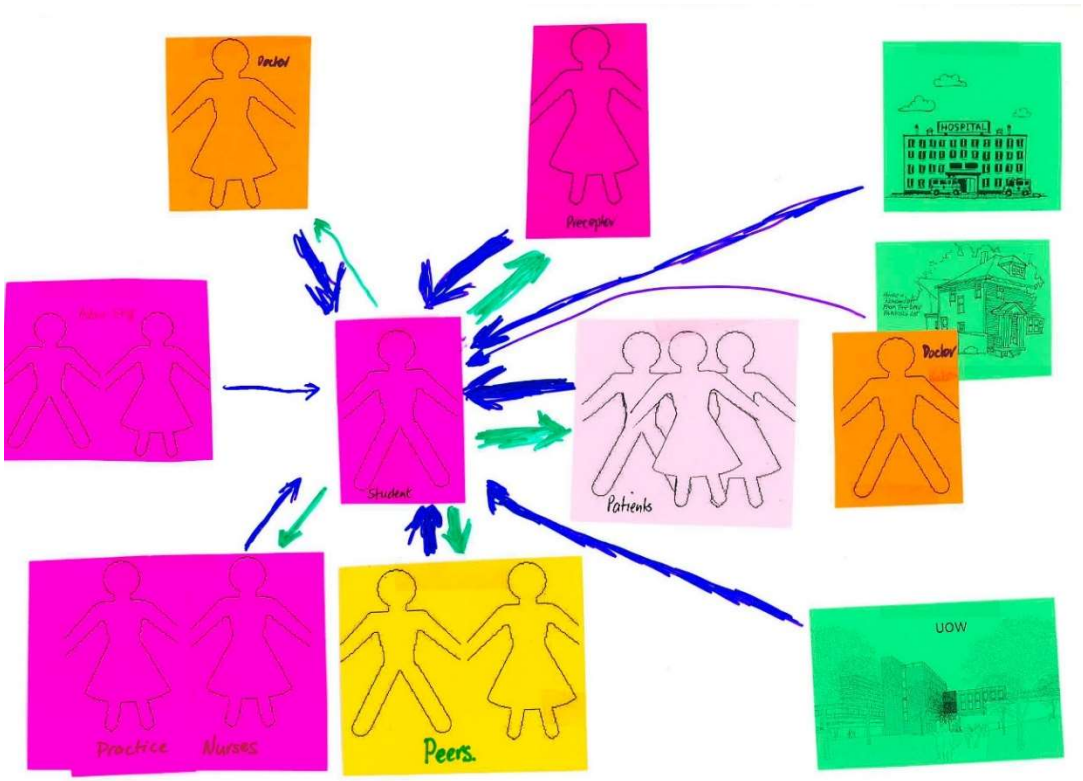


FIGURE 7.3 MIND MAP BY TIM (GENERAL SCIENCE)



All students illustrated two-way learning with many of the players collaborating in the patient-care environment: patients, doctors, hospital and administration staff, practice nurse(s) and other health professionals. Patients, preceptors and peers were the strongest learning connections indicated by students, the former two being important when educating for patient-centred collaborative practice.

There are two additional observations worth highlighting. First, Vivien (Figure 7.2) included female doctors as contributing to her learning. In the previous chapter there are only a few quotes which mention female doctors as role models. Clearly Vivien valued her female preceptors, when the majority of GPs outside the major cities in Australia tend to be male. Second, in the two figures provided, and in the other mind maps created by interviewed students, the bidirectional arrows between the student and the patient, illustrate that, in the community(s) of practice, students were learning with and for patients.

Summary of results

The themes that emerged during the longitudinal integrated clerkship experience are in stark contrast to the fragmented traditional hospital block rotations with regard to learning with and from patients. Students' foci returned to the patient, supported by the involvement of those people within the students' network of core relationships. A summary of the themes from the end of Phase 3 interviews are shown in Table 7.3.

Table 7.3 Summary of themes from the end of Phase 3

Players and the setting	Themes
The patient	Learning with and from patients
Doctors	Preceptors as professional mentors
Health professionals	Opportunities for interprofessional practice
Students	Becoming a professional
The learning environment	Longitudinal relationships in community(s) of practice

During this phase of medical education students were placed in a challenging new environment for their learning. Those interviewed rose to this challenge, developing not only their medical skills and practice but also developing personally as they partnered with patients as individuals, and with the community. Trusting and respectful relationships evolved as students worked with doctors and other health professionals, mainly nurses, to aid students' engagement in the clerkship. Students were discriminant, taking the **best bits** as role modelled by their preceptors and other staff to add to their own repertoire of skills. Part of the maturation of students as medical practitioners was developing skills to focus on a particular issue, or deal with complex patient problems associated with multi-morbidity.

While the opportunities for interprofessional practice were limited for some students, it was via the casual conversations and time working with nurses that students became aware of nurses' extensive experience and knowledge. This

occurred with nurses in GP practices and the hospital emergency department, leading to a greater level of respect for nurses.

Students' relationships with patients fostered insights into each patient's reality and the value of seeing the whole patient. The continuity of patients provided a setting where students developed as patient-centred professionals, as they gained knowledge of their patients as individuals. The interview data illustrated the immense power of students and patients working together, mentored by their preceptors and practice nurses to contribute to the development of students' collaborative patient-centred practice.

The next chapter draws together the longitudinal results of students' experiences of the environments, from their perspectives. It merges students' evolving understanding of the place of each group of players within healthcare, and how learning environments contribute to students' perceptions of patient-centredness and collaborative practice.

Chapter 8: Synopsis of the changes in students' perspectives during the four years of their medical degree

This chapter brings together qualitative findings from the longitudinal study. They can be considered as an unfolding play, a drama presenting the students' journeys from novices to healthcare professionals, with each of the learning environments viewed as a scene in the play, and the players being the groups of people with a vested interest in the medical student learning, including the students themselves.

The essence of the journey, the themes related to the setting and players, are captured in Table 8.1. This is followed by a short narrative of the students' changing perspectives of each group of players, as students move through each scene in the play.

Table 8.1 Longitudinal development of themes from interviews completed over four years of the medical degree

Players and the setting	Entry Graduate-entry program	Post-ICE Community Placement	End of Phase 1 Campus-based	End of Phase 2 Traditional Hospital Rotations	End of Phase 3 Longitudinal Integrated Clerkship
The Patient	Uncertainty where the patient fits in	Recognising the patient in the context of their lives	The key role of simulated patients	Tension between student learning needs and patient care	Learning with and from patients
Health Professionals	Ultimate responsibility for patient care	Growing appreciation of other health professionals The use of language	Teamwork: learning from different perspectives	The challenge of developing relationships with health professionals	Opportunities for inter-professional practice
Doctors	The hospital is the doctor's domain	The reality of the doctor's world		Integrating into the doctor's team	Preceptors as professional mentors

Students	Anticipatory socialisation	The challenge of integrating into the team	Medical school culture: a model for student values	Adapting to the challenge of hospital environments	Becoming a professional
The Learning Environment	Expectations of medical school	Organisation of placements	Belonging in a supportive learning community	Fragmented learning Hospital teams reflect professional silos	Longitudinal relationships in community(s) of practice

The drama started in the real world where the media and past experiences influenced student perspectives of healthcare. Over the four years of the degree, students moved from the supportive community of the campus-based program which modelled collaborative practice, through the challenges of **belonging** in the traditional hospital rotations, to **becoming** a professional in the communities of practice within the integrated longitudinal placements. The variety of learning environments provided students with rich, diverse and at times challenging experiences, and these settings had a profound influence on the student journey. As the drama unfolded over four years, students' understanding of the role of the various players matured. Notably, the value and contribution of patients changed positively and students observed the varied effects of relationships between health professionals on patients' care. Themes related to each player are summarised below, starting with the central character, the patient.

Patients

Initially many students were uncertain as to how and when patients may be involved in their healthcare, voicing a paternalistic view towards patients. For some students, the interdisciplinary placement achieved one of its objectives, namely to gain the

patient's perspective on his or her healthcare. Students who were assigned to follow patients' healthcare journeys, gained a deeper understanding of their patients as individuals within the system. There was growing awareness of the impact of a patient's health on his or her family, as well as the importance of the patient's home environment and family members. By the end of Phase 1, students acknowledged that patients played a valuable role in student learning. Surprisingly, following the hospital rotations, students tended to objectify the patient for their learning. However, after the longitudinal integrated clerkship, students viewed the patient as the subject, rather than the object of learning. Continuity with patients provided two-way learning, and students gained tacit knowledge of collaborative patient-centred practice in partnership with patients.

Health professionals

Initially, many students perceived that members of other healthcare professions were not suitability qualified to be leaders in a healthcare team due to incomplete or insufficient knowledge. Their role was to help the doctor care for patients, delegating aspects of care to other health professionals. However, after completing the ICE placement, students identified a greater variety of health professionals, and their statements revealed a growing awareness of the positive contribution of other health professionals to patient care. For example, dietitians, physiotherapists and others were recognised as having a different sphere of knowledge to doctors. This contributed to students' growing respect for other health professionals' abilities and skills. Some students were surprised that doctors actually have limited knowledge in some areas of healthcare. Over the remaining time of the campus-based program,

students described how they observed the activities and behavior of team-teaching members and the involvement of health professionals such nurse, physiotherapists and psychologists in the curriculum. This provided opportunity for learning team–based practice vicariously.

While most of students after completing the traditional hospital rotations realised the importance of developing relationships with doctors, nurses and other staff involved in patient care, the very nature of the continuous changes of staff made this difficult. Students were also constantly moving in and out of different wards and medical areas, so there was little time in which to form any meaningful professional relationships. Furthermore, students observed the separation of nurses and other health professionals into their groups with their own hierarchy and as doctors-in-training they were aligned with doctors.

While the opportunities for interprofessional practice were limited for some students during the longitudinal clerkships, casual conversations with these health professionals aided development of trusting relationships. When students spent sustained on-going time working with nurses and came to know them as individuals, students became aware of the extensive experience and knowledge of this professional group. This occurred with nurses in GP practices and the hospital emergency department, leading to a greater level of respect for nurses.

Doctors

On entry to medical school, students perceived that doctors were seen as the natural leaders. Students perceived that doctors have a better overall picture of the patient and are responsible for setting the direction and delegation of care. For some students the reality of the clinical workplace experienced during the ICE placement did not fit this picture. Following completion of ICE, students expressed the following perspectives: people were very busy; doctors did not always show up when expected; communication was not always ideal; and sometimes doctors took over in team meetings. Despite this many students continued to see doctors as the hero who saved patients' lives, and as a leader, respected for expertise and knowledge. Students used words such as brilliant, cool and awesome. When the doctor was not available to assist students' involvement in patient care, many students did not look to others within the team for guidance.

The subsequent twelve months after completion of the interdisciplinary placement proved to be a positive experience for most students. The progressive school atmosphere enabled students to understand which values the school considered important for students to acquire in their journey to becoming professional. During the variety of case-based and clinical skills sessions, students were exposed to examples of doctors working in collaboration with other health professionals by the use of team-teaching. A variety of different examples of health professional collaboration were modelled during these sessions such as: doctor and scientist; anatomist and clinician; doctor and allied health professionals; or nurses and doctors.

Students described the different perspectives presented by this team-teaching as valuable.

Throughout the hospital rotations students found it difficult to be included within the medical team, either because of high staff workloads or a disorganised ward, but also because of perceived disinterest on the part of the clinicians. An important factor influencing students' relationships within the medical team was the short duration of each of the rotations, being only five weeks. However, at a minimum, students needed to be seen to be involved in patient care as part of their assessment by the consultant or registrar. Most students developed various strategies to earn these attentions, to become legitimate members of the medical team.

In contrast to the fragmentation during the hospital clerkship, continuity of patient care and supervision in the longitudinal clerkship fostered relationships. Most students developed strong professional relationships with their supervising doctors, and described these preceptors as encouraging, supportive and non-judgemental, providing meaningful feedback. The duration of the placement was significant for promoting trusting relationships to form between students and their preceptor(s), giving students legitimate access to the preceptors' patients. Importantly, the opportunities for students to observe how their preceptors conducted themselves with patients and other professionals within the practice provided beneficial exposure to collaborative patient-centred practice.

Students

As healthcare educators, we must consider that students commence their medical education with their own preformed opinions, attitudes and values of other health professionals, and how they see themselves as doctors. Initially most students had an idealised role of doctors, reflecting society's perceptions. These ideas and attitudes were challenged, to some degree, for most students during the interdisciplinary clinical experience (ICE). The reality of the healthcare workplace was that this setting was not always welcoming to students. There were a number of barriers related to other health professionals' workloads, time pressures and personalities, how the placement was organised or the level of isolation in which the placement was located. Despite this, most students enjoyed the three weeks of interdisciplinary clinical experience.

Students described the campus-based program as a student-focused medical curriculum, centred on learning in teams and in partnerships with communities of health professionals and the general public. The school atmosphere was supportive with approachable staff who were generous with their time and knew students by name. The medical school was described as a learning community where most students felt a sense of belonging.

Juggling the many competing demands on their time and the fragmentation of the traditional hospital rotations were some of the challenges students faced in adapting to the hospital and medical hierarchy. They also stated that most health professionals worked within their professional silos with few collaborative teams.

Students aligned themselves with the medical team and worked out various strategies to develop relationships with the consultant and other members of the medical team in the short allotted time of each rotation. Pressure of time, hierarchy and divisions along profession lines all contributed to a fragmented learning experienced by students during the twelve-months.

In contrast, the longitudinal integrated clerkship provided students with time and space to develop their practice as doctors through relationships with patients, their preceptor(s), peers and other health professionals, particularly practice nurses. They learnt vicariously and by authentic involvement in practice activities. Of critical importance to developing a collaborative patient-centred professional, was students' legitimate role in each community of practice. The practice community demonstrated respectful interactions with patients, practice nurses, colleagues and other practice staff. Continuity was the guiding principle of a longitudinal learning environment where students could learn and belong in an apprenticeship-style manner, accelerating the process of becoming collaborative patient-centred practitioners. Active participation in each community provided the opportunity for students to use their abilities and skills to demonstrate their worth in the group.

While not usually seen an important player in collaborative patient care, peers were identified by students as an important group of players in their journey. Student perceptions, as well evidence from mind maps, revealed that relationships with peers were especially important for student learning. Peers were recognised as important colleagues, with whom to discuss and debate. This perhaps represents the

beginnings of collaboration with professional peers for the delivery of best patient care. Peers, as well as patients and other health professionals, can be considered as key members of professional practice teams.

The impact of this unfolding play, the players and the scenes informed by the qualitative and quantitative data, will be discussed in the next chapter, in light of current literature.

Chapter 9: Discussion

This research has revealed a number of factors within the learning environment that appear highly influential on educating medical students for patient-centred collaborative practice. Learning environments which offer students longitudinal professional relationships with patients are likely influential, with patients being critical members of communities of practice. Inclusive, respectful conduct between all stakeholders - patients, students, academics and clinicians - and role-modelling these characteristics, are also important. Clinical placements for healthcare students should focus on student-patient learning relationships, rather than relationships with supervising health professionals, and should be underpinned by an educational pedagogy of continuity rather than fragmentation.

Exploring the influence of learning environments on educating for patient-centred collaborative practice is important, as patient-centred collaborative practice is considered a critical ingredient for achieving safety and quality in patient care. As a result, interest in developing patient-centred collaborative practice has gathered global momentum and calls to educate healthcare students to be cognisant in this practice are increasing (Gillespie & Reader 2018; IOM 2015; Cox et al. 2013; WHO 2010; Frenk et al. 2010). While there have been many initiatives (Gillespie & Reader 2018; Cox et al. 2013; Frenk et al. 2010), there has been criticism that some of these strategies are just ticking the box and not providing a meaningful interprofessional collaborative activity (Joynes 2018). Certainly, many activities are of short duration and not always compulsory. Evaluations have shown mixed results, with some students becoming more negative after the interventions (Fletcher et al. 2014; Ruebling et al. 2013; Myhre 2013; McFadyen et al. 2010; Just et al. 2011).

Therefore, questions remain as to how best to educate for collaborative practice, and there is ongoing debate on the most suitable time to do this - should it be during undergraduate education or in post-graduate years, early in training before the formation of professional identities and possible prejudice, or later once students have an understanding of their professional role?

Mindful of these questions, this thesis explored the influence of the learning environment longitudinally, in educating undergraduate medical students for patient-centred collaborative practice. As a cohort of medical students progressed through an undergraduate program, quantitative and qualitative data were collected sequentially at five key time points from entry to the medical degree through to graduation.

Assessing students' readiness for interprofessional learning is important when aiming to educate for patient-centred collaborative practice. The RIPLS, an established instrument that has been widely employed to survey health professional students' attitudes, was used to gather longitudinal quantitative data on attitudes of the student cohort. Students were surveyed at key points in their undergraduate medical education and showed minor changes over time. The decline in the patient-centredness factor from the end of Phase 2 compared to the end of Phase 1, was most notable, although small. Interestingly, this is in keeping with the qualitative data collected after Phase 2, where students perceived that the fragmented hospital learning environment was not conducive to patient-centred learning and practice. However, there was a small decline in scores for the patient-centredness factor from entry to the end of the medical degree, with little changes in the other factors of

teamwork and collaboration, and professional identity. It is difficult to assign practical and/or educational significance to these changes as the RIPLS scores for all students were relatively high on entry to medical school (even when the sample included students with high, medium and low RIPLS scores), and changes in all three factors - teamwork and collaboration, professional identity and patient-centredness - were generally small. This is in keeping with an earlier criticism that RIPLS is not able to discriminate difference in scores at the higher values, reported as the ceiling effect (Rajiah et al. 2016).

The small but statistically significant decline in the patient-centredness factor between the end of Phase 1 (campus-based education) and the end of Phase 2 (traditional hospital block rotations) was supported by the emergent theme of *tension between student learning needs and patient care* (Table 8.1). The observed decline, after Phase 2 is also supported by previous studies that have reported that patient-centredness and empathy decline during the traditional block rotations in the clerkship stage of the curriculum (Ishikawa et al. 2018; Hudson et al. 2016; Hojat et al. 2010; Bombeke et al. 2011). This is significant as a decline in empathy has been shown to contribute to a decrease in a student's ability to understand others' points of view (Triffaux et al. 2018). Having the ability to understand the patient's perspective is central to patient-centred care. As discussed in Chapter 3, the quantitative data, gathered by longitudinal administration of the RIPLS, resulted in limited findings, and the significance of the few changes with statistical significance in the context of clinical education is debatable. Furthermore, there has been considerable disagreement about the relevance of declining attitudes (Ferreira-

Valente et al. 2017; Bombeke et al. 2013) with some studies demonstrating a small increase or no change to attitudes over time and there are suggestions that an attitude scale may not be appropriate for longitudinal assessment of change (Fong et al. 2018; Bombeke et al. 2013).

Bombeke et al. (2013) demonstrated that students' scores from a validated questionnaire on patient-centred attitudes declined after twelve months of hospital block rotations. Subsequently during interviews, in answer to questions about this decline in their scores, the students stated that their **frame of reference** had changed with increasing clinical experience. Fong et al. (2018) reported the results from a follow-up interview study of medical students during their clinical year. They found that compared to the same students' pre-clinical interviews, students had developed a greater understanding of what it meant to provide patient-centred care as well as increasing ability to address patients' psychosocial challenges. This suggests that, as students broaden their skills and knowledge during training, they interpret and answer survey statements with greater nuance. This is supported in the literature by a growing concern that the sensitivity of some surveys to monitor any longitudinal change of attitudes or empathy is limited (Hemmerdinger et al. 2007; Chen et al. 2010; Colliver et al. 2010; Bombeke et al. 2014).These authors recommended that it may be necessary to use different surveys at different stages during training. Moreover Schmitz and Brandt (2015) have questioned the utility of RIPLS to produce valid responses from students who have had no prior exposure to interprofessional education, and have little knowledge of their own or others'

professions. In their editorial, they suggest formation of an expert group to identify the 'best' instruments for use in the interprofessional field.

Considering the discussion in the previous paragraph on the difficulties of longitudinal quantitative surveys to monitor attitude change, the results from the qualitative data for this research are likely to be more reliable and insightful in providing a more comprehensive understanding of the research question. Indeed, the data were more revealing on the influence of the learning environment. Influential factors included features of the academic and healthcare environment, and the role of the different 'players' within these settings. While many interesting themes arose from the qualitative data (Table 8.1), four themes, describing key influences on the students' learning environment, merit highlighting.

The first theme is *anticipatory socialisation* or pre-entry socialisation. This is often described as a form of rehearsal, or taking on attitudes and beliefs of the role or career a person aspires to, prior to having evidence for its truth (Levine et al, 2006). Socialisation, both external and internal to the medical school, is of particular importance when exploring the influences on educating students for patient-centred collaborative practice. Students' preconceived ideas of the doctor's role reflect important attitudes and opinions on which the educational pedagogy, and the nature of the social environment of the medical school and associated clinical placements in the healthcare system, exert influence.

On entry to medical school, students had preconceived ideas of the doctor's role in the healthcare team, with evidence emerging of the powerful influence of media, particular television medical dramas, as well as parents, family and friends, on student views of health professionals. As a result, students revealed a stereotypical view of themselves as doctors. The power of television to influence students' views is supported by Morgan et al (2007) and others (Price et al, 2014; Weaver et al., 2011). Morgan et al. (2007 p 144) state:

> *... because entertainment television presents fictionalized accounts in narrative form, they are cognitively processed differently than factual information; there is evidence that receivers suspend counterargument and become fully absorbed in the story being told.*

More recently, Weaver et al. (2011) reported in *The Conversation*, that students may not realise the influence that medical dramas have on their view of the medical world. The subservient portrayal of nurses and often adversarial nurse-doctor relations as narrated in television medical dramas, were described by students.

Michalec et al. (2017) demonstrated the formidable role that anticipatory socialisation has on perpetuating stereotypical views which students had about themselves, and those professionals outside their speciality. These views are highly likely to be a barrier to educating for collaborative practice. Other authors have also shown how anticipatory socialisation contributes to students' stereotypical views of other health professionals (which may be positive and negative) and themselves in their chosen profession (Price et al. 2013; Tunstall-Pedoe et al. 2002). Tunstall-

Pedoe et al. (2002) found that students commenced their healthcare education with firmly established views on each other's professions and stated that:

> *...any notion that students arrive without preconceived ideas about the other professions is misplaced.* (Tunstall-Pedoe et al, 2002, p169).

Price et al. (2013, 2014) found similar evidence when reviewing the literature to investigate the doctor-nurse relationship over time. They confirmed that this relationship which was often adversarial is based on *deeply rooted historical trends* (Price et al. 2014, p.107), which likely starts in early childhood. Furthermore, some recent research findings on anticipatory socialisation have suggested that aspects of this process continue even into the later years as a qualified health professional, and may influence career satisfaction and interprofessional dynamics (Carr et al. 2006; McKenna et al. 2010; Price et al. 2014). Clearly, preconceived attitudes to other healthcare professionals outside students' chosen professions are long-term powerful opinions which are challenging to negotiate in any efforts to educate for collaborative patient-centred practice.

Belonging in a supportive learning environment is the next emergent theme influential to the learning environment (Phase 1). Educators, clinicians and students' preceptors effectively role-modelled the way to value patients. This experience contributed to the students' understanding of patient-centredness. The major contributors to this outcome were early clinical experience and the contribution of community members as simulated patients for student learning in the skills centre. These two factors encouraged respect for, and understanding of, patients' perspectives during the early years and prepared students for future involvement

with real (not simulated) patients. The importance of **walking the talk** or role modelling desired student values as part of the medical school climate was an early internal influence identified in the interviews at the end of the Phase 1 campus-based education. The school had established a respectful inclusive learning environment, particularly involving simulated patients for student learning, and students valued this practice in the skills centre. They also learned the value of being a team player as they experienced numerous team-teaching encounters, and noted that learning together had important benefits for patients and themselves. It stood as a demonstration of the school's commitment to patient-centred, collaborative practice, and students felt a sense of belonging in this supportive setting.

Hospitals, clinics and primary health centres, which make up the learning environment for medical students, is highly influential on the development of their professional values, attitudes and opinions (Ferreira-Valente et al. 2017; Dunham et al. 2017; Arndt et al. 2009; Adams et al. 2006; Pitkälä & Mäntyranta 2003). There is copious research on medical schools' learning environments and their role in students' career choices, well-being, academic performance and professional development. More recently, the influence of these factors on patient-centredness has been reported by a number of researchers (Bombeke et al. 2013; Hudson et al. 2016; Ferreira-Valente et al. 2017) using quantitative scales to measure the influence of pre-clerkship educational environments on patient-centredness. The findings from these studies have helped to gain an understanding of students' attitudes and opinions about patient-centredness, but have not explored how or why influences such as role modelling, contribute to their attitudes.

Social learning theory provides a number of useful concepts related to this discussion, which may be influential on student learning. Of particular importance is the influence of role models on students' attitudes. Bandura (1977, p35) stated that:

> *Most human behaviour is learned observationally through modelling: from observing others, one forms an idea of how new behaviours are performed, and on later occasions, this coded information serves as a guide for action.*

It is through observing and interpreting the interactions of their role models that students learn the behaviours and attitudes of their chosen profession. Learning by observation comprises visual, verbal and symbolic models (David 2015). Thus, on entry to medical school, students should observe a culture of respect and value for all health professionals and patients, for example by tutors or even in podcast or online materials. In the interviews after Phase 1, it is noteworthy that the students no longer portrayed a subservient role for nurses, some of whom were their tutors in the clinical skills centre.

The final two influential themes, *fragmented learning,* and *longitudinal relationships in community(s) of practice,* relate to the influence of pedagogy and the healthcare system. Fragmentation of the learning environment, as in the Phase 2 rotation-based hospital learning environment, made learning patient-centred collaborative care more challenging. The fragmented experiences of short-term placements, changing specialist teams every five weeks, provided limited opportunities for students to develop any on-going relationship with patients, supervisors or other staff.

Therefore, there was insufficient time for students to experience authentic on-going participation in patient-centred care. This situation was exacerbated by the nature of the healthcare system. The short term nature of patient stays in contemporary healthcare influenced student learning in the hospital. Staff appeared to work in professional silos and students viewed **the team** as the medical team, rather than one comprising a variety of health professionals providing care centred on the patient. Overall, the challenge of learning in the hospital tended to encourage a student-centred, rather than a patient-centred focus.

The root of fragmented healthcare can be traced back to antiquity. Plato, talking about the physicians of Hellas, explained that the physicians studied only the individual parts, neglecting to study the whole person:

> *that as you ought not to attempt to cure the eyes without the head, or the head without the body, so neither ought you to attempt to cure the body without the soul;… because they are ignorant of the whole, which ought to be studied also; for the part can never be well unless the whole is well.* (Plato, 2008 translation)

While often interpreted to convey the importance of holistic medicine, at another level this quote is also about the dangers of concentrating on the pieces without integrating these into **reading the text which is the patient** (Bleakley and Bligh, 2006).

Scientific inquiry has had a strong influence on how we developed our knowledge about the human body and disease. We have learnt to understand complex phenomena by dividing events, issues, incidents or experiences into increasingly smaller parts (Westley 2006), to obtain a deeper insight by analysis and deductive reasoning. Medical knowledge, education and practice have been based on this principle. Historically, health education and particularly medical education, has been taught by specialities: anatomy, physiology, biochemistry, pharmacology and pathology in the junior years, followed by hospital rotations of medicine, surgery, critical care, perinatal and women's health, psychological and addiction medicine, and child and adolescent health in the senior years. This educational strategy has been based on fragmented learning inherited from our scientific philosophy. As we have expanded our understanding of the body, specialised medicine and the number of health professions have grown, without a similar growth in our ability to integrate, prioritise and personalise these narrowed constructed specialties (Stange, 2009). This has tended to discourage relationships between different disciplines and professions, and hinder student opportunities to develop relationships with patients. As a consequence, many researchers have reported a decline in patient-centredness in the senior years of medical education (Ishikawa et al. 2018; Hudson et al. 2016; Hojat et al. 2010; Bombeke et al. 2011), and a mismatch of current and future healthcare needs (Armstrong et al. 2004; Hirsh et al. 2007; Kandiah 2017).

Under the time pressure of short-term hospital rotations during Phase 2, students in the current research found it challenging to develop relationships with their supervisors and other health professionals, particularly as the various teams reflected

professional silos. Hospital block rotation clerkships are touted as improving a student's ability to adapt to new learning environment and practices style (Bernabaum et al. 2011). However, this can come at the expense of relationship-building with patients, supervisors and near peers (Barrett et al. 2017; Bernabaum et al. 2011; Stange 2009; Kendell et al. 2005; Christakis 1997), as found in this study. The qualitative results emerging from interviews conducted at the end of Phase 2 demonstrated that students faced a dilemma choosing between patient-centred care and their own learning needs. They also had to cope with the constraints of the learning environment and perform adequately in any assessment. To progress, students had to adapt to the challenges and demands of the hospital environment. As a consequence, they were compelled to focus on their own learning to the detriment of patient-centred practice.

It was continuity rather than fragmentation that had a major influence on developing patient-centred team-based care. The educational pedagogy in which students experienced continuity with patients, facilitated by healthcare professionals, presented students with a valuable patient-centred perspective. Notably, this was first reported during the interdisciplinary placement in Phase 1, where some students were assigned to follow patients in rehabilitation settings. The benefit of continuity with the patient was not reported when placement organisers provided a more fragmented experience, which tended to be focused on the health professional.

It is useful to revisit the words of one student, Janice, who evidently valued the strategy of following patient progress as early as in her ICE placement, and

subsequently utilised this strategy to assist her learning during hospital placements. She (Janice) embraced the concept of continuity with patients in both her early (first citation) and later (second citation) traditional hospital placements:

> *We each got a patient to follow for the three weeks and just seeing how each of them [various health professionals] worked, we followed him [patient] around and saw how they deal with him.*
> Janice (General Science, during ICE placement).

> *I went to the wards with one of the other students and we'd do histories and examinations. Then I'd try and see each patient before they went into theatre and take a history and do an examination to see why they were having the surgery, then watch the surgery and follow them back onto the ward to see them, what happens. We follow each individual patient.*
> Janice (General Science, during hospital surgery rotation).

This suggests that early clinical learning environments can be influential as long as they are patient-focused rather than teacher-focused.

The value of continuity with patients was most evident from the student perspectives of the longitudinal integrated clerkship placements in Phase 3. Students valued learning from and with patients in the various communities of practice in which they participated. Longitudinal relationships with preceptors and access to their patients enabled students to move from an initial peripheral position a more central place in the community, achieving partnership with the patients in his or her care. Student confidence and expertise were gained by the powerful relationships and collaborations which developed during this process. In the community(s) of practice, students participated in formal and informal interactions with other health

professionals, especially nurses. Moreover, observing these interactions between health professionals fostered vicarious learning. Continuous learning from patients during the longitudinal integrated clerkship in the final years of undergraduate medical education enabled students to view the patient as a key player in the healthcare team, and thus was influential for developing patient-centred collaborative practice.

In contrast to the dominant principle of fragmentation in medical education, continuity has been advocated as an organisational principle to focus connectedness between patients, students and educators (Hirsh et al., 2007). Continuity can be defined as an *unbroken and consistent existence or operation, a connection or line of development* (Concise Oxford Dictionary, 2006, p.309). The current literature supports the value of continuity, rather than fragmentation, as an educational pedagogy developing patient-centred care in medical education (Ogur et al. 2009; Hauer el at. 2009; Hauer et al. 2012; Hirsh et al. 2007; Hudson et al. 2017; Latessa et al. 2017).

The results of the current research support the value of a number of the continuity principles for learning, as described by Hudson et al. (2017): continuity of care, continuity of supervision, and continuity with peers. The theme *learning with and from patients* (at the end of the longitudinal integrated clerkship placements), illustrated the on-going interconnected learning by students when caring for the patient, and exemplifies the concept of continuity of care. Both the patient and the student benefited from this caring relationship. Importantly students, by means of

collaboration with patients and caring for people with chronic illness, learned patient-centred care.

Clinical supervision directly impacts student learning (Kilminster 2000; Wimmers et al. 2006). Kilminster et al. (2000, p 828) specifically state this as:

> *...the quality of the relationship between supervisor and trainee is probably the single most important factor for effective supervision.*

The theme *preceptors as professional mentors* (at the end of the longitudinal integrated clerkship placements) demonstrated the nature of the doctor-student relationships and the significance for students for their learning. The doctor was viewed as a trusted professional and even, on occasion, as a personal adviser. Continuity of supervision also supported students in their professional development, described in the theme *becoming a professional*: accelerating students' confidence and independence; managing time constraints; and building capacity for providing holistic and thorough care. Students observed professional conduct as they witnessed preceptors' interactions with other professionals and staff. However, in a learning environment offering continuity with patients, it was the patient who was the key influence for identity development. Bleakley and Bligh (2006, p. 99) described how a fully-fledged patient-centred model of education can then arise:

> *When the collaborative process of exchange between doctors, other healthcare professionals, medical students and patients shifts its emphasis to promote a knowledge-generating dialogue between patients and medical students.*

Bleakley and Bligh (2006) configure this strong model of patient-centred medical education as an activity system, in which students and patients engage in mutually beneficial dialogues supported by experts who support, but not shape student learning, as part of the legitimate community of practice (Bleakley and Bligh, 2006). Activity systems are inherently unstable, allowing for changes that occur through time, for example as a student moves from a peripheral to a central participant in the community of practice. Medical students' frames of reference may change as they develop their professional identities, and it may be that only as senior students, are they able to appreciate and learn collaborative practice. However, at all times, the patient is a critical member of the communities of practice in the learning environments aiming to educate undergraduate medical students for patient-centred collaborative practice.

Limitations

Limitations will be discussed in sequence from sampling, data collection, analysis and interpretation. Described in data collection section of Chapter 2, the sample for the qualitative research in this study, was purposely selected from the stratified scores of RIPLS at entry to the medical degree. A sample of only 15 participants, with high, medium and low RIPLS scores, was chosen as Miles & Huberman (1994) suggest that greater than 15 participants is unwieldy and complex for interviewing. The technique of maximal variation allowed the selection of diverse perspectives across the range of student attitudes, as recommended by Hammarberg et al. 2016, Etikan et al. 2015, and Kitto et al. 2008. As Hammarberg and colleagues (2016)

stated, the threat of bias is irrelevant as participants are selected **because** of their capacity to shed light of the phenomena under investigation. This purposeful technique also allowed for a comprehensive understanding of the factors of influence and to strengthen internal validity (Etikan et al. 2015; Malterud, 2001).

For a longitudinal study over four years, it was only possible to adequately manage one cohort of students. Limiting the study to one medical cohort in one medical school affects the transferability of the results. Although the research was staged in a new medical school, the study participants were the fourth cohort of students. When they commenced medical studies, the course material, staff and placements were consistent, which increased the confidence that this cohort was representative of students in an established innovative program. As discussed below, this invites exploration of the results in other medical schools.

Drop-out or attrition is not uncommon in longitudinal surveys and rates between 30% and 70% drop-out have been reported (Tamb et al, 2009; Gustavson et al., 2012; Goodman et al., 1996). The attrition rate for the RIPLS survey was 22%, well within acceptable rates. The small numbers of participants used for the RIPLS decreased the statistical power of the results. However, this study did not set out to generalise the results with other research, but to compare and contrast longitudinal results from a representative sample from the same cohort. Response bias due to repeated administration of the survey is possible. Nevertheless, with 7-18 months between subsequent administrations, it can be argued that this was a sufficient time gap to have little or no effect on the reliability of the survey results.

As with all interview data there is the potential for socially acceptable responses to be received from participants. However, having the same interviewer throughout the longitudinal research encouraged rapport and facilitated trust, decreasing this potential. Bias was further decreased by the use of researcher triangulation or inter-rater reliability (Kitto et al., 2008) during the analysis stage. A further strength of this study was the value added by analysis of all data by multiple analysts with diverse health backgrounds. The sharing of results and challenging of preconceptions bolstered the quality of the research data analysis, strengthening reflexivity and interpretive rigour.

The analysts had the following diverse health backgrounds:

- A senior nurse, midwife and clinical skills educator (PhD candidate);
- A public health scientist and associate professor in medical humanities; and
- A generalist medical doctor and professor in health and medical education.

Despite the acknowledged limitations there is value in this study to inform on-going work in health education research for patients, students, their preceptors and communities.

Future directions

Globally, there is a growing appreciation of the benefits of continuity in educating for patient-centred collaborative care and future work could explore this continuity principle further, investigating its influence in a range of learning environments.

Most research on continuity in undergraduate medical education has emerged from exploration of longitudinal integrated clerkships, a clinical placement model for preparing senior medical students for practice. Currently, there are two models of longitudinal integrated clerkships, the generalist model as used in this study, and the parallel streaming model (Hudson et al. 2017). In the parallel streaming model, mostly used in North America, students are based in clinical speciality outpatient clinics on the same session each week, and this is integrated with hospital-based care. Despite a focus on medical specialities, continuity with patients has also been achieved with this parallel streaming model. It would be interesting to conduct a similar study comparing the two models of continuity in medical education, asking the questions: how does the setting influence the contribution of patients to students' learning to become patient-centred collaborative practitioners? And is it continuity *per se* or the fact it is community-based which is influential?

Hospital rotation clerkships, despite limitations, provide students with access to a diverse range of clinical skills, opportunities to further their knowledge of a variety of disciplines, as well as to work with senior health professionals to solve complex medical dilemmas. Given that clinical clerkships in many medical schools are hospital-based rotations, further research should explore how students' focus on patient-centred collaborative care can be improved in this setting. This likely will require examination of the healthcare system, as well as educational factors. Fraher and Brandt's (2019) recent call for interprofessional education to develop new models of learning that are delivered in the context of practice, is relevant. They proposed a shift from the predominant focus on preparing students to be

collaboration-ready to designing clinical practice environments that support continuous learning with benefits for patients, populations, and providers, as well as students. The longitudinal integrated clerkship described in thesis offered senior students continuity with patients in the world of clinical practice, with benefits for patients and health care providers in each local community. Allowing all students to follow patients through their healthcare journey in early clinical placements is also of interest. Would such an experience of patient-continuity be of benefit to students' attitudes towards patient-centred collaborative care during subsequent placements? Aspects of the qualitative results of this study can also be used to develop a new survey exploring the development of attitudes to patient-centred collaborative education, for administration to a larger sample of students in multiple medical schools.

Recommendations

- To prepare medical students for working in interprofessional clinical teams centred on the patient's care pathway, educators should provide authentic patient-centred models of education where the focus of learning is on collaborative working relationships between patients and students.
- Doctors and other health professionals supervising medical students should facilitate, rather than direct, the development of longitudinal patient-student learning relationships.
- When aiming to educate medical students for patient-centred collaborative practice, educators should address the attitudes that students hold prior to entering medical school, i.e. anticipatory socialisation, and

the culture and attitudes expressed by educators and professionals in the medical school and healthcare system.

- Clinical placements for medical students, including those early in the program, ideally should be based on the principle of continuity rather than fragmentation, to facilitate continuity with patients and their care. From the perspective of a sample of medical students described in this thesis, a community-based longitudinal integrated clerkship model in Australia facilitated this.
- Gather deeper qualitative data from participants with the addition of mind maps or other visual methods to gain an understanding of how learning environments may be influential on medical student attitudes to patient-centred collaborative practice and/or interprofessional learning, as current surveys may lack sensitivity.
- To develop a more nuanced survey exploring medical students' perspectives on developing patient-centred collaborative practice, gather qualitative data from a sample of students to inform survey statements.
- Further explore the influence of collaborative student-patient relationships from the perspectives of patients, and students who have experienced continuity of patient-student relationships in different models of longitudinal integrated clerkships.

Appendices

Appendix 1: Core Clinical Presentations

1	Fever	2	Bleeding / bruising
3	Weight change	4	Electrolyte disturbance
5	Abnormal blood sugar	6	Lymphadenopathy
7	Breast lump / pain	8	Lump in the neck
9	Joint pain / swelling	10	Back pain / neck injury
11	Limb pain / swelling	12	Skin lump / lesion / ulcer
13	Skin rash / eruption	14	Itch
15	Hair and nail disorders	16	Burns / electrocution
17	Poisoning / overdose	18	Envenomation
19	Submersion injuries	20	Trauma / injuries
21	Difficulty walking	22	Disordered consciousness
23	Unconscious patient	24	Dizziness / vertigo
25	Facial pain	26	Collapse / sudden death
27	Tiredness	28	Headache
29	Weakness	30	Movement disorder / tremor
31	Numbness / paraesthesia	32	Fits, faints and funny turns
33	Addiction	34	Aggression, violence and abuse
35	Anxiety	36	Self harm
37	Depression / change in mood	38	Hallucinations
39	Deterioration of intellect / memory	40	Learning & behavioural problems
41	Sleep disturbance	42	Change in vision
43	Red and painful eye	44	Nasal disorders / altered smell or taste
45	Change in hearing	46	Ear pain and / or discharge
47	Mouth and throat pain and/or lesions	48	Hoarseness / change in speech
49	Cough / haemoptysis	50	Shortness of breath
51	Stridor	52	Wheeze
53	Cyanosis	54	Chest pain
55	Low blood pressure	56	Raised blood pressure
57	Heart Murmur	58	Oedema

59	Palpitations / abnormal heart rhythm	60	Abdominal distension
61	Abdominal pain	62	Abdominal mass
63	Anorectal pain/lump	64	Change in bowel habit
65	Dysphagia / dyspepsia	66	Gastrointestinal bleeding
67	Jaundice	68	Vomiting / anorexia / nausea
69	Groin lump	70	Oliguria and anuria
71	Haematuria	72	Urinary retention
73	Urinary frequency / dysuria	74	Urinary incontinence
75	Abnormal vaginal bleeding	76	Vaginal discharge
77	Menstrual disturbance	78	Pelvic pain
79	Testicular / scrotal pain and/or swelling	80	Infertility
81	Genital disorders / sexual dysfunction	82	Pregnancy and contraception
83	The small baby	84	Genetic and congenital problems
85	Normal and abnormal development	86	Gender and sexual identity
87	The elderly patient	88	The dying patient
89	The patient with chronic disease	90	The perioperative patient
91	The indigenous patient	92	Preventive health and screening
93	Public health and travel medicine		

Appendix 2: Participants Information Sheet

University of Wollongong 

Participants Information Sheet for Medical Students

A longitudinal study of the influence of undergraduate learning environments on educating medical students for patient-centre collaborative practice?

My name is Sue Vella and I am lecturer and Co-ordinator of Clinical skills centre – Shoalhaven campus. I am studying for a PhD, under the supervision of Dr Nicky Hudson, Professor of Community-Based Medical Education at the Graduate School of Medicine and A/Prof Peter Caputi from the School of Psychology, University of Wollongong.

This project seeks to explore your perspective while learning in the variety of placement environments that you will be involved in, during your training. Attitudes develop over time and I am interested in the influences which may contribute to the development or any changes in attitudes to working with & learning from other health professionals. This study will cover the four years of training and will include two different questionnaires and for a small randomly sample of students a series of one-to-one interviews.

The study will require all participants to complete a questionnaire of previous experiences in relation to healthcare teams; this will be conducted during Phase 1. A second questionnaire, will ask questions on the atmosphere or climate of your placement environment. You will be asked to complete the second questionnaire at two difference intervals. Once, during the hospital rotations in Phase 2 and once in Phase 3. The questionnaire will take approximately 10 mins to complete each time. There are no potential risks or burdens associated with this section of the study.

A small group of students will be asked to participate in one-to-one interviews up to five times during the four years. I would like to gain a deeper understanding of the experiences students obtain during their placements. If selected, you will be invited by email to participate. I will arrange to meet with you to sign the consent form if you are willing to be interviewed. You will be asked to discuss your experiences of the placement environment. All information will be confidential. There are a series of up to 5 interviews within the 4 years of training. Each interview needs to occur within a timeframe of approximately 4 months. The interviews will take approximately 45 minutes and will be arranged to occur at a mutually agreed time (within the timeframe) and place. This is the only potential burden associated with this section of the research and there are no potential risks

To maintain confidentiality and anonymity you will be assigned a name rather than using your true name which will be used for all questionnaire information and the taped interviews. The taped interviews will be erased after being put in a written form. All information will be pooled together to write a thesis and may be used for publication. You are free at any time to refuse to participate or, having consented, to withdraw your consent without that refusal or withdrawal affecting your relationship with Sue Vella or the Graduate School of Medicine. You will be asked to consent to the individual interviews separately to providing consent to questionnaires. If you would like further information please contact Sue Vella on (02)4429 1508, Monday - Friday 9am-4pm or by email suev@uow.edu.au.
Thank you

Sue Vella

Should you have any concern or complaint concerning the manner in which this research is conducted, please do not hesitate to contact University of Wollongong Ethics Officer on (02) 42214457.

University of Wollongong

Appendix 3: Consent Form for Longitudinal RIPLS

A longitudinal study of the influence of undergraduate learning environments on educating medical students for patient-centred collaborative practice?

Researcher: Sue Vella

Consent Form for Questionnaires.

I have been given information about *"A longitudinal study of the influence of undergraduate learning environments on educating medical students for patient-centred collaborative practice?"* I have had the opportunity to discuss this research project with Sue Vella, the Coordinator of Clinical skills - Shoalhaven. This is part of a PhD degree supervised by Professor Nicky Hudson from the Graduate School of Medicine and A/Prof Peter Caputi from the School of Psychology at the University of Wollongong.

I understand that if I consent to participate in this section of the project I will be asked to complete a questionnaire of previous experiences in relation to healthcare teams; during Phase 1 (MEDI 601). I also consent to complete the second questionnaire, once during the hospital rotation in Phase 2 (MEDI 602) and once in Phase 3 (MEDI603). The questionnaire will take approximately 10 mins to complete each time. I understand that my contribution will be confidential. I understand that there are no potential risks or burdens associated with this section of the study.

I have agreed to provide my student number on the questionnaires; this will be removed and coded by the data administrator prior to the researcher acquiring assess for analysis. I have had an opportunity to ask Sue Vella any questions I may have about the research and my participation. I understand that my participation in this research is voluntary and I am free to refuse to participate and I am free to withdraw from the research at any time. My refusal to participate or withdrawal of consent will not affect my relationship with the Graduate School of Medicine at the University of Wollongong in my course of study in medicine.

If I have any enquires about the research, I can contact Sue Vella on (02) 44291508 and/or Prof. Nicky Hudson 42214836. If I have any concerns or complaints regarding the way the research is or has been conducted, I can contact the Ethics Officer, Human Research Ethics Committee, University of Wollongong on 42214457.

By signing below I am indicating my consent to participate in the research. I understand that the data collected from my participation will be used primarily for a PhD thesis, and will also be used in summary form for journal publication, and I consent for it to be used in that manner.

Signed …… Date ……. /……../…….

Name (please print) ……..

Email …….

Appendix 4: Consent to Longitudinal Interviews

University of Wollongong 

A longitudinal study of the influence of undergraduate learning environments on educating medical students for patient-centred collaborative practice?

Researcher: Sue Vella

Consent Form for Interviews.

I have been given information about *"A longitudinal study of the influence of undergraduate learning environments on the development of medical students' attitudes to interprofessional learning"* I have had the opportunity to discussed this research project with Sue Vella, the Coordinator of Clinical skills - Shoalhaven. This is part of a PhD degree supervised by Professor Nicky Hudson from the Graduate School of Medicine and A/Prof. Peter Caputi from the School of Psychology at the University of Wollongong.

I understand that if I consent to participate in this section of the study I will be asked to participate in one-to-one interviews up to five times during the four years of the medical degree training. I will be asked to discuss my experiences of the placement environment. I understand that each interview will take approximately 45 minutes and will be arranged to occur at a mutually agreed time and place. This is the only potential burden associated with this section of the research and there are no potential risks. I understand that my contribution will be confidential.

I agree that my name may be recorded on the taped interviews, but it will be coded and removed by the transcriber or researcher during the transcriptions of the tape. I agreed to the interviews being tape recorded and understand that the tape interviews will be erased after being put into written form. I have had an opportunity to ask Sue Vella any questions I may have about the research and my participation. I understand that my participation in this research is voluntary and I am free to refuse to participate and I am free to withdraw from the research at any time. My refusal to participate or withdrawal of consent will not affect my relationship with the School of medicine at the University of Wollongong in my course of study in medicine.

If I have any enquires about the research, I can contact Sue Vella on (02) 44291508 and/or Prof. Nicky Hudson 42214836. If I have any concerns or complaints regarding the way the research is or has been conducted, I can contact the Ethics Officer, Human Research Ethics Committee, University of Wollongong on 42214457.

By signing below I am indicating my consent to participate in the research. I understand that the data collected from my participation will be used primarily for a PhD thesis, and will also be used in summary form for journal publication, and I consent for it to be used in that manner.

Signed …… Date …….. /……../……..

Name (please print) ……..

Email …….

Appendix 5: Student Cohort Demographics Form

University of Wollongong 

Student Number:

Questions on Previous Experiences of Healthcare.

Please complete the following details

Age:

Gender:

Previous Degree:

1. Previous work Experience, please list.

_____
_____
_____
_____

2. Have you worked in a health related job before studying in the School of Medicine?

YES NO

What position/s did you hold?

_____
_____
_____
_____

Please describe your role

_____
_____
_____
_____
_____
_____
_____

3. Have you been involved in healthcare teams?

For example, in the care of a relative or child, either in hospital or at home?

YES NO

Appendix 6: Interview Protocols

6a. Entry interview guide

Topic Area	*Questions*
Learning with and from other health professionals	What course(s) have you previously been involved in? Tell me about any past experiences of learning in student groups or learning with students from other disciplines to your own?
Past experiences of other health professionals	Did your previous course include any placements? If so, what was it like learning in the workplace? What groups or professions were represented in your workplace? Did you work closely with any people from disciplines different to yours?
During previous degree ± placement, any experiences learning with/from health professionals	Was your previous course or work experience related to healthcare? If so, did you work with a range of health professionals? Which ones?
	Did you learn anything from health professionals other than from your own discipline?
Strategies: Repetition, request clarification and confirmation	In your medical course, do you expect to learn about medical care from other health professionals besides doctors?
	What do you think you may learn from other health professionals (which ones and what)?
Peers ideas of learning from other health professionals?	What expectations do your family &/or friends about who you will learn from during your medical training?
	How do you think doctors are portrayed in the media?
Family & network influences	How do you think other health professionals are portrayed in the media?
	Do you think the media's portrayal of doctors and other health professionals have influenced your (or any of your peer's) attitude to interprofessional learning in healthcare?
Media, TV e.g. House, Grey's anatomy	Have you had any personal experiences that may have influenced your attitude to interprofessional learning?
	E.g. in previous work; course; or in relation to healthcare delivered to you or your family or friends? If so, how have they been influential?
Experiences of teams e.g. during placements, sport, other	Tell me how you would explain what is meant by a team & teamwork in healthcare, to someone who had not heard about this before?
Prior experiences of	Tell me about any involvement in working in teams during your previous degree? If so, what was your role in the team? Did you

healthcare as patient, close relative or friend Strategies: Repetition, request clarification and confirmation	feel like a useful team member? What was your contribution to the team outcome? Tell me about any involvement in working in teams during your previous work? If so, what was your role in the team? Did you feel like a useful team member? What was your contribution to the team outcome? How are teams in healthcare portrayed in the media?..e.g. TV shows like Gray's anatomy? Have any of these TV shows or movies influenced your attitude to teamwork or collaborative practice? If so, how? Have you or a close relative been involved with health teams for a serious illness? What is it like being the patient/support person? Have you had any personal experiences that have influenced your attitude to collaborative practice in healthcare? E.g. in your previous work; course; or in relation to the healthcare delivered to you or your family or friends? When you are a qualified doctor, how do you see yourself working in a healthcare team? Any other comments?

6b. Interview guide following 'ICE' placement

Topic Area	Questions
Intro /Ice breaker	Tell me about your placement? - who did you work with &/or observe during placement What did you enjoy most during your placement? What did you enjoy least?
Belonging /Included in the team, valuable member & valued	Was your facilitator prepared for your arrival? Were members of the team interested in you & what you were doing? How were you included in the teams' activities? - Any involvement in discussions with healthcare professional (HCP)/ team meetings? - Was your ideas/thoughts asked for at all? Did you feel you belonged in the team you were assigned to? What contributed to your sense of belonging/ not belonging?
Participation and learning	Describe the patient care activities you were participated in? (What active roles/ passive role involved in?) Did you feel supported by other members of the healthcare team? - Were they approachable, encourage you to participate in care? - Happy to teach/guide you? Were they any opportunities for you to share your ideas about patient care or the team process? Did you feel like a useful member of the healthcare team? Why/why not?
Development of relationships	How did you get along with other members of the team? Tell me more? Tell me about any opportunities you had to discuss your learning with HCP/s? Was there anyone who was a role model for you during the "ICE" placement? "I remember that during placements, some people I worked with would discuss their previous experiences with me and how this changed who they were as a health professional" Did you have any similar discussions with any members of the team? Or perhaps you were able to discuss an experience that you were both involved in? Tell me about this? What did you observe about the interactions between HP and their patients? (e.g. How did the HP's develop rapport with their patients)
Observations and vicarious learning	How did the team you were involved with communicate? Tell me about your observations of the team process?

	- How did the team process contribute to patient care? - How did the team process detract from or adversely affect patient care? - Any discussions with HP about their experience of team working? How have your experiences during ICE placement contributed to your attitudes of working in a healthcare team?
Attitudes to IPL (developed from what behaviours the student values and from students' perception of their role models view the student attitudes should be)	What did you learn from the nursing/physio or other HP you worked with? What experiences have contributed to your ideas about learning for other health professionals? Has your attitude to learning with other health professionals changed? How? Do you view learning from or with other health professions any differently after your 'ICE' experience? What activities during ICE, prepared you for your future role/activities really had no use for your future role?

6c. Interview guide following campus-based program (Phase 1)

Topic Area	Questions
Introduction Strategies: Repetition, request clarification and confirmation	Tell me about what it was like being a phase 1 medical student? What groups /classes did you enjoy? What classes/group did least enjoy? Do you study with a group of friends/peers?
Awareness of collaboration	How would describe the GSM teaching team? In what ways do these groups/teams contribute to your learning? During Phase 1 the structured learning is organised in to different sessions. How do you each of these groups/sessions contribute to your learning? Tell me about any small groups learning activities you are involved in.
Team Teaching	Have your seen any situations in which there were 2 or more GSM staff/ tutors were teaching? (Did you have any experience of 2 tutors in the same group? What was that like, how did it work?) What were the +ve & not so good (-ve) What did that feel like, having 2 tutors teaching you?
Educational Climate	Do you feel supported by your peers? Tutor? What sort of support was provided? How would you describe the learning environment of the GSM? In what ways does the GSM support your learning? In what ways could the learning environment be changed to improve your learning? Is the school open to suggestions? Are your tutors interested in your leaning? Have you had the opportunity to develop social

Strategies: Repetition, request clarification and confirmation	(professional) networks/relationships with your peer? Your tutors? >>> Others? Do you think the GSM values their students? How does this contribute to your learning? Do you see any evidence that members of the GSM teaching or support teams work together to benefit your learning or support your transition to the next phase? Do you feel connected to or ha a sense of belonging to the GSM? What contributes to this?
Placements	Did you enjoy placements in the hospital & GP practice? Positives & negatives. What did that feel like? (I have heard from others that the hospital was not too +ve? Did you peers enjoy these environments? How did other staff in the hospital / GP practice make a positive contribution to your training The results from the RILPS after ICE placement showed the attitudes to working with other health professional decreased? Why do think this may have occurred? What key learning issue in relation to multidisciplinary team experience needs further exploration during your training? Do you see any (overlap) areas/role (skills etc) that are the same between your role and that of other health professionals?

6d. Interview guide following traditional hospital rotations (Phase 2)

Topic Area	Questions
Introduction I would like to get an overall picture of what Phase 2 was like.	Tell me about what it was like being a phase 2 medical student? Which placements did you enjoy? Why? Positives & negatives.
Placements – participation? How were you involved in patient care during this placement? Any meetings about patient care? - Sense of belonging/being valued member Strategies: Repetition, request clarification and confirmation	Was your placement facilitator prepared for your arrival? Describe the patient care activities you were participated in? (What active roles/ passive role involved in?) Did you feel supported by other members of the healthcare team? Were members of the team interested in you & what you were doing? How were you included in the teams' activities? - Any involvement in discussions with healthcare professional (HCP)/ team meetings? - Was your ideas/thoughts asked for at all? Did you feel you belonged in the team you were assigned to? What contributed to your sense of belonging/ not belonging? Who were the people involved with during the placement?
Educational Climate Strategies: Repetition, request clarification and confirmation	What was it like learning in this placement? Do you feel supported by your peers? Tutor? What sort of support was provided? Where there any students from other professions.....did you meet/discus/work with them? Can you describe experiences that had occurred - an interaction with a patient which the student felt was 'meaningful', and - an interaction with a patient whom the student had seen more than once. Two questions addressed important clerkship experiences by asking the interviewee to describe, respectively: A story he or she would be telling 10 years into the future, including details of the student's role and interactions, and how the student anticipated this experience might influence the doctor he or she was becoming, and a time at which the student had 'felt like a doctor'.

Exploring team /group characteristics - Team goal, main focus of team/group - How communications occurred between members - Relationship between members & team interactions	How would describe the group/ team? Was there a focus to the team/group discussions? What role did the patient play in any discussions? Who decides on care plans & any changes? How did members of the group get along?
Development of relationships	How did you get along with other members of the team? Tell me more Where you able to develop relationships with anyone in the group/ preceptors/patients? Tell me about any opportunities you had to discuss your learning with HCP/s? Was there anyone who was a role model for you during your placements? "I remember that during placements, some people I worked with would discuss their previous experiences with me and how this changed who they were as a health professional" Did you have any similar discussions with any members of the team? Or perhaps you were able to discuss an experience that you were both involved in? Tell me about this?

6e. Interview guide towards end of longitudinal integrated clerkship (Phase 3)

Topic Area	Supporting Questions
Introduction I would like to get an overall picture of what Phase 3 was like.	Tell me about what it was like being a phase 3 medical student? As well as the medical practice, what other placements are you involved in? How have you settled into this town/village?
Placements – participation How were you involved in patient care during this placement	Describe the patient care activities you are currently do? (What active roles/ passive role involved in?) Were members of the practice interested in you & what you were doing? How were you included in the practice activities? - Any involvement in discussions with healthcare professional (HCP)/ meetings? - Was your ideas/thoughts asked for at all? How comfortable do you know feel working here?
Educational Climate Probing questions: Can you explain that more? Can you give an example? Strategies: Repetition, request clarification and confirmation	What was it like learning in this practice? Do you feel supported by your peers? Preceptor? What sort of support was provided? Are there any GP registrars or other students… in each of the placements ….did you meet/discus/work with them? Some students find that they are 'out of their depth' in this clerkship. Can you describe a situation in which this happened to you? Can you describe experiences that had occurred - - an interaction with a patient which the student felt was 'meaningful', and - any interaction with a patient whom the student had seen more than once. Two questions addressed important clerkship experiences by asking the interviewee to describe, respectively: - a story he or she would be telling 10 years into the future, including details of the student's role and interactions, and how the student anticipated this

	experience might influence the doctor he or she was becoming, and a time at which the student had 'felt like a doctor'.
Exploring team /group characteristics	What teams have you been involved in? How would describe the group/ team? Was there a focus to the team/group discussions? What role did the patient play in any discussions? Who decides on care plans & any changes? How did members of the group get along? You may have been able to observe other health professionals in their deals with others. Can you give an example? (Is the patient part of the team, in the community; in the hospital setting)
Development of relationships Probing questions: Can you explain that more? Can you give an example? Strategies: Repetition, request clarification and confirmation	How did you get along with other members in this practice? Tell me more How did you get along with others at the hospital/other placements? Where you able to develop relationships with anyone in the group/ preceptors/patients? Tell me about any opportunities you had to discuss your learning with healthcare professionals? Was there anyone who was a role model for you during your placements? How would you describe your relationship with your preceptor?
Student's learning environment : **Mind Map** Aim is to gain a visual understanding of the important people and settings and there connection to the student.	"I would like to get an understanding of how you see the learning environment – people, places and your place in this environment by creating a mind or concept map. I will take a photo once we have finished discussing your mind map." Q: Draw a mind map of your learning environment, including the people and any places that are involved. Put your name and those who are involved in your learning: first names & role. Use stick figures. Prompts: Who is involved in your learning? How are they connected to you? Can you explain what you have put together?

Appendix 7: Simulated Patient Program Overview for Potential Volunteers

1 Program - 3 Different Ways to Get Involved

Graduate Medicine (GM) was established in January 2007 to produce excellent medical practitioners who are able to contribute to the enhancement of healthcare for patients in all geographic settings, but particularly in regional, rural and remote communities. It is also expected that GM graduates will have a commitment to patient-centred, evidence-based, reflective and cost-effective medical practice.

GM has adopted a wide range of learning and educational approaches as well as state of the art technologies to assist in the facilitation of such learning. One of the key learning activities for medical students will be the interaction between students and our community. In establishing a Simulated Patient Program, GM is ensuring that students are able to learn and continually practice appropriate communications with real people, make diagnoses and have immediate access to feedback. To do this successfully we need to involve people from the local communities.

As GM progresses and develops so has our teaching and involvement of community members. All aspects of the program require volunteers to undergo training and briefing before involvement with our students, and in some cases more specific recruitment is used.

Currently community members are involved in a variety of ways:

- Simulated Patient Program
- Expert / Session Specific Simulated Patients
- Male and Female Teaching Associates (TAs)

What would I have to do in the Simulated Program?

As a regular Simulated Patient (SP), you will need to be available to participate in scripted role plays and/ or physical examinations with our 1st and 2nd Year Students. This allows the students to practice communication skills and physical examination techniques.

For example: to allow a student to become proficient in carrying out a cardiovascular examination; or taking a neurological history from a SP. This would not involve intimate examinations and we would always talk to you about nature of the activity and the level of commitment required in advance.

Many SPs continue to participate in the program over a period of time, accessing more training and becoming more skilled as they progress. (See Simulated Patient Program Frequently Asked Questions for further information)

What would I do as a Session Specific or Expert SP?

The Expert Simulated Patient Program is particularly focused on recruiting people from the community who have stable conditions which the students can learn from or who are from a particular group. These SPs could be involved in Clinical Demonstrations or in regular Clinical Skills Sessions. Examples of this are when the 2nd Year Students are learning about different heart sounds and murmurs or when the students are gaining an insight into the psychosocial impact of living with breast or prostate cancer.

Session Specific SPs are required for certain sessions throughout the year. For example: Mental Health workers for the "Psychiatric History" session; and our older SPs for the session on "Communication with the Geriatric Patient and Assessing Higher Function".

(See Expert/Session Specific Simulated Patient Program Information for further information)

What would I do as a Teaching Associate (TA)?

Teaching Associates provide opportunities for medical students to practise a number of intimate examinations with male / female TAs in a controlled and safe educational setting. In recognition of the high level of contribution to the teaching of our students TAs receive a gift for their involvement in the program. This is in the form of a gift card to a well-established retail group and is offered for physical examination and training sessions.

The TA Program is designed for medical students to:

Gain confidence in both the fine technical skills and the sensitive communication skills required to undertake intimate examinations. For men this would involve examination of the groins, genital area and digital rectal examinations. For women this would include breast and gynaecological examinations.

Learn to perform these examinations in a non-threatening environment with immediate feedback and guidance from the TA.

(See Female Teaching Associates or Male Teaching Associates Information for further information.)

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